The Builder.

SATURDAY, JUNE 4, 1853.

THE Exhibition of Cabinet Work which has been opened at Gore House, Kensington, in pursuance of a determination on the part of the Committee of Privy Council for Trade that a collection of fine specimens of cabinet work would be useful to the students of Schools of Art, and the public generally, should be visited by our readers. It includes a number of beautiful works of industrial art, and a larger number of most costly pieces of manufacture. Their value, indeed, is so great, that the liberality and confidence evinced by their possessors should be praised. One of the best-informed dealers in articles of this character tells us, he should think the collection would sell for nearly half-a-million of money. We should not go so far as this, although we are perfectly well aware of the fabulous prices which may be obtained just now, both on the continent and at home, for remarkable specimens of furniture; but we can vouch for its great value. We may add, that the same authority said he would himself give 5,000*l.* for the cabinet of mahogany and or-molu sent by the Queen, and that the three China vases which stand on the cabinet No. 64 would probably sell for 3,000*l.* These are figures which startle one, and serve to show that the money which a country may spend in improving, and getting a reputation for its productions, is not thrown away.

It must not be supposed that all the specimens exhibited are of good design; many of them are as bad in this respect as it is possible to imagine anything—displaying broken pediments, superabundance of heterogeneous ornaments, heavy cabinets standing on quivers of arrows for legs, and other weaknesses; but each is remarkable in some particulars, and may be usefully studied. We should be glad to see more furniture of an earlier period. It would be interesting to get together some of the ancient chests, trestles, desks, and benches of the 14th century: we find in them a propriety and sense which are less observable in some works of later date.

A carved ebony cabinet in the first room (15) sent by Mr. R. Holford, is a singularly good example of wood-carving in low relief. The walnut-tree cabinet (20) in high relief, is very inferior to it. There are many fine specimens *en marqueterie;* take, for example, the writing-table (25) sent by the Queen. Works in marquetry of very great merit are produced in England at this time. In viewing such works, distinction must, of course, be made between those composed with woods mostly of their natural colours, and those wherein dyed woods are used, which often fade. Great care is needed in the selection of woods likely to retain their colour, and skill and taste are needed in the combination, so as to produce a harmonious effect. It was in Florence and Sienna (where excellence in marble mosaic work was early attained), that marquetry was first used to any extent. In the middle of the 16th century, these works were very popular in Italy. In our own country marquetry has been practised for two centuries, and has a character of its own. The modern name, it will be remembered, was given to it from M. Marquet, who re-introduced its use in comparatively recent times.

The small "Buhl" cabinet sent by Mr. Baring Wall, M.P. is an excellent specimen of inlaying. Buhl has its name, we may mention, from its inventor, Boule, a French cabinet-maker, who introduced this mode of ornamenting furniture at the end of the seventeenth century. In this process, no part of the material is wasted: two or three thin veneers of different woods are fastened together; the patterns are then cut out with a fine saw, and the cavity in one veneer is filled up with the pattern cut out of the other. Brass, with a dark wood or tortoiseshell, were the materials which Boule himself employed, and it is to works in these materials that the term is more particularly applied. The cabinet sent by Lord Granville (31) is a beautiful specimen of this work.

The Duke of Hamilton's *commode*, in buhl and or-molu, is a beautiful work.

The Duke of Northumberland has contributed a noble cabinet of the seventeenth century (38), ornamented with Florentine mosaics and raised decorations, also in *pietra dura*. In design, it is not free from puerilities. It is attributed to Le Pautre, about 1670.

In Florence, the working in marbles, pursued so successfully by the Byzantine artists, was revived early. Fra Mino executed mosaics in Florence in 1225. In the sixteenth century the Grand Dukes of Tuscany founded, and still maintain, a manufactory of this work, from which have proceeded some extraordinary productions. Agates, lapis lazuli, jaspers, giallo antico, on a ground of nero antico, or rosso antico, are the materials chiefly used, and come under the general denomination of *pietre dure*. The patterns to be inlaid are carefully cut out of a slab, with a saw and file, and the hard stones, worked into the proper shapes by the ordinary methods of gem cutting, are accurately fitted into the spaces in a finished and polished state. If the whole face of the work when completed, were polished together, some of the stones, being softer than others, would be worn away too rapidly, and produce inequalities of surface. In Devonshire and in Derbyshire some very beautiful works have been recently produced.

A bronze group for lights (63), including three figures, which stands upon a Buhl cabinet (47), is an admirable piece of work. We look for a great extension of bronze working in England: an impetus has been given to it which will, it is to be hoped, augment. A wide field for artistic industry is here open. The value of bronzes annually made in Paris at this time, cannot be less than a quarter of a million sterling.

As an encouragement to those who are following this branch of art in England, we may mention that Hatfield has just now found a purchaser, at the sum of 300*l.* for his bronze figure, after Mr. Foley's "Youth at the Stream," produced by him for the Great Exhibition.

There are several specimens of furniture, presenting panels of porcelain, the *pâte tendre* of Sèvres, the cabinet (64), for example, sent by her Majesty, which afford useful hints for modern ingenuity to work upon.

The *pâte tendre*, or "old Sèvres," was the result of many experiments made by French manufacturers and chemists at the commencement of the eighteenth century. The workmen who had been engaged in the first manufactory of this china founded an establishment on their own account, from which afterwards, namely, in 1745, the then Minister of Finance purchased the secret of the composition. Louis XV. elevated the works into the Royal Manufactory, and became ultimately sole proprietor of it. The most eminent artists were connected with the establishment, and specimens of such excellence were produced as to obtain for it a world-wide reputation. The composition of earthenware, the opaque coatings, the enamel colours, the vitreous glazings, have occupied the lives of men, have involved the intensest mental labour, little thought of by those who regard simply the results.

Study and analysis of the Oriental china led to the production of the *pâte dure*, or hard porcelain. After much research, proper materials for its composition were discovered in France; its fabrication was introduced at Sèvres, and at the beginning of the present century the manufacture of the *pâte tendre* was abandoned altogether in its favour.

So much has been done in this department in England lately, that we feel assured if there were a sale for works of the highest class, which necessarily cost much money, whether in France or here, we should have no difficulty in producing works rivalling those of the Sèvres manufactory.

The cabinet of mahogany with applied ornaments of or-molu, contributed by the Queen, and already referred to (71), is one of the finest pieces of workmanship ever seen, more particularly in the metal work: the exquisite manner in which the flowers and scrolls are formed cannot be sufficiently admired. When the doors are opened, the drawer handles show the same care and skill. The design is injured by the caryatide figures at the angles, which do not accord with the rest of the ornament, and the puerile conceit shown in the legs.

In our desire to lead our readers who may visit the collection to inquire into the various processes and branches of art which are illustrated by the examples it contains, we have left ourselves little space to speak of the works of the students in the various schools of art in connection with the department, or the series of studies from the life lent by Mr. Mulready. Many of the works of the students are very creditable productions. Amongst those whose efforts deserve praise are Mary Julyan, Florence Collins, Sarah Hipwood, Susan Ashworth, and Eliza Mills, all of the London school: William Hough, of Coventry; Walter Quill, of Paisley; and B. Williams, of Worcester, for a singularly clever painting of fruit.

AN ACCOUNT OF THE MEANS TAKEN TO RAISE A SUNKEN FLOOR OF A WAREHOUSE, AT MILL-LANE, TOOLEY-STREET.

In the year 1849, Alderman Humphrey built a stack of warehouses at the bottom of Mill-lane, Tooley-street, from designs prepared for him by his architects, Messrs. Allen, Snooke, and Stock. That portion of the work which forms the substruction was carried on somewhat irregularly, and was directed in great measure by the Alderman himself. The builders were Messrs. William Cubitt and Company, of Gray's Inn-road. The foundations of the piers and front wall, against the street, were put in entirely under the Alderman's own direction, so that, whatever has taken place from defective construction reflects in no manner either on his architects or his builders. Some time since, we described briefly, after a personal visit, the failure in the foundation here, and the means adopted to raise the floors. On the 16th ult. Mr. I'Anson laid the particulars of the case before the Institute of Architects, and we add a portion of his statement:—

The building consists of seven stories, including the basement. The roof is a queen post roof, of about 60 feet span; the height of the top story, from the floor to the under side of the tie-beam, is 10 feet; the walls are 1½ brick thick in the recesses, and 2 bricks thick in the piers. The upper floor is constructed with wooden girders, having a bearing from centre to centre of the iron posts of 15 feet; the girders are 13 inches square; the joists, 12 inches apart, 12 inches by 3; and the bearing between the girders is 11 feet 6½ inches, or from centre to centre of the posts 12 feet 7½ inches; the girders are supported by iron posts, to which I shall hereafter refer, and their ends rest on stone templates. The height of the story next beneath the topmost floor, from the top of the floor to the under side of the joists above, is 8 feet 10 inches; the walls on this floor are 2 bricks thick in the recesses, and 2½ in the piers. This floor is constructed as a fire-proof floor, with arches

1 brick thick, in cement, springing, with a rise of 12 inches and a span of 12 feet 7 inches, from iron girders, or springers; there is a layer of concrete over these arches, on which the floor surface is formed with asphalte; the abutment of the arches is stiffened by tie bolts running longitudinally through the building, one in the centre of each bay, between the iron story posts. The construction of the floor next but one to the topmost floor is similar to that of the topmost floor; the walls are 2½ bricks thick, and the height of the story, from the top of the floor to the under side of the joists, is 8 feet 9 inches. The floor next but two to the topmost floor is fire-proof, being formed of brick arches built in cement with a thickness of concrete, covered by an asphalte flooring, as already described for the floor next the topmost floor; the walls are 3 bricks thick. The height of this floor, from the surface of the asphalte to the under side of the joists above, is 8 feet 9 inches. The floor next but three to the topmost floor, in ordinary parlance the first floor, is of timber construction, and similar to that of the topmost floor, except that the spaces betwen the joists are filled in with concrete, supported on a layer of slates fixed between the joists by wooden fillets. The height of this floor, from the surface of the floor to the under side of the iron springer, is 8 feet 2 inches, but under the centre of the arch 9 feet 2 inches; the walls are 4 bricks thick in the recesses and 4½ in the piers. The ground floor is paved with slate, bedded on concrete, resting on the arches of the basement story, which arches are 9 inches thick, built in cement, and have a span of about 9 feet 4 inches, and a rise of 13 inches. This floor is 9 feet 10 inches to the under side of the girders, and 10 feet 10 inches to the under side of the joists; the walls of the same thickness as in the floor above. The basement floor is paved with stone, and is 8 feet 10 inches high under the centre of the arch.

The iron posts supporting the floors increase in size from the top of the building downwards; the caps are cast with the posts, and have a spread of 3 feet. The diameter of the upper story posts (or rather the width of the web) is 8 inches, and the metal web is 1 inch thick, and the centre of the post is, I believe, hollow. The diameter of the lower story posts is 11 inches, the metal of the web is 1½ inch thick. The warehouse is thus divided into four horizontal compartments, which are, it is presumed, effectually fire-proof, and the compartment between the ground floor and first floor is further made more secure by the quasi fire-proof construction of concrete laid between the joists,—a principle which Alderman Humphrey has carried out to a much greater extent in some of his other warehouses. The total area of each floor is about 6,656 feet, and the total cubical contents of each fire-proof compartment, including the thickness of the timber floor, is 133,000 cubic feet. The communication between the several fire-proof compartments is at present, and is intended permanently to be, by means of a staircase external to the building, but between the two compartments comprised between the fire-proof arches, it is by the usual internal ladder from floor to floor.

Before its completion the warehouse began to show some evidences of settlement, which, as the loading was applied, greatly increased until the settlement of the story posts reached as much, in some cases, as 10 inches, one of the first symptoms being the crushing of the arches springing from the piers in the basement.

With the exception of the great defect of putting all the floors out of level, the building suffered no further damage than that the several brick arches, and particularly those in the basement floor, were all more or less fractured, and some of the stone templates in the wall were also split.

The simple and efficacious means which have been used to rectify this defect is the subject to which I now call attention. Simple and comparatively easy as the operation may appear, I know of nothing of its kind which has been more successful; and the experiment having been conducted on a scale of some magnitude, and with such satisfactory results, I have thought it might not be devoid of interest.

The warehouse having been relieved of all its contents, except on the upper floor, which was loaded all the time, the first operation was to remove the pavement of the basement, and to shore up the warehouse on that floor. For this purpose four cast-iron girders, each capable of bearing a weight of 150 tons, were inserted through the piers under the springing of the arches, and these were effectually shored up by timber shores. The next step was to sink down to the foundations of the piers. Here the concrete was found defective and soft, but the great error seems to have been in not excavating the ground down to the gravel, and placing the original concrete on it. In restoring the work this was, however, done. The first concrete was removed, and the ground below having been excavated, fresh concrete of Thames ballast and stone lime was put in, resting on the gravel. The thickness of the new concrete was from 5 to 7 feet. The lower parts of the original brick piers, which were built in mortar, were removed, sometimes in one and sometimes in two at a time, the upper parts being carried during the underpinning by the iron girders, and the piers were rebuilt with brickwork in cement. These parts having been made secure, new arches of three half-brick rims were introduced under the original arches, springing from pier to pier, and on which the skewback which carried the floor arches of the ground floor was cut. These arches were considerably crippled, and the springing line now shows by its sagging, as it were, towards the middle of the building, how considerable a settlement has taken place, but it is now only in this part of the building that it can be observed. The floor arches were repaired and made good. The concrete covering was also partially removed, and the whole of the slate paving of the ground floor. The concrete having been made good and brought to a level, the slate pavement was relaid. The foundation having then been perfectly secured, centres were fitted to the two end bays of all the brick arches above the basement, which was shored up, and one course of bricks was removed all along the crown of the arches which were shored; against the side walls of the warehouse the arches were cut through so as to leave them quite free and clear of the walls, and the brickwork round the ends of the iron springers was cut away so as to leave the ends free, and all the bolts securing the caps to the wooden girders were screwed out and left loose. Stout uprights were then placed in the centre between each post, from the basement arch to the underside of the iron springer of the first fireproof floor; and twenty-eight screw-jacks of various forms and power having been procured, were fixed as close as they could be conveniently to the sides of the posts, and other strong uprights were placed above the jacks up to the underside of the girders on the top floor. A man having been placed to look out on every floor, the screwing commenced, by which at every effort the floors were raised from $\frac{1}{16}$ to $\frac{1}{8}$ of an inch.

The raising was thus effected of all the floors above the first floor, and gradually, as they rose, iron wedges were applied under the caps of the first floor, and also over the uprights between the posts. This operation of screwing having been gradually carried on a little at a time, at intervals of a day or so, until the floors were raised as high as was considered safe, the screw-jacks were removed, and upright shores were placed against the posts, which were then left loose, and by the aid of two small jacks they were each got up, and stone and iron bases placed under them and well wedged up. When the whole had been made secure and firm, the brick arches were repaired, and made good. The whole operation of screwing up, including the preparing for it, and making good after it, occupied two months. The jacks were worked two at a time, and there were sometimes ten men to one jack. The whole work has now been most effectually carried out, and there are few traces (except the sunk line of the springing of the basement arches) to indicate the great settlement which took place. The restoration has not, however, been carried out with mathematical precision, and it has been thought necessary to introduce some iron wedges between the iron caps and springers; and to make doubly sure, the wooden girders have had an extra camber given to them, and are blocked up with wooden blocks on the iron caps.

The warehouse has now been carefully and fully tested, and there is no further evidence of settlement or giving in any direction.

One thing which is particularly instructive in this partial failure, is the fact that the foundation of the flank wall, which was built at the same time as the foundations for the story posts, and is carried down to the same level, has not sunk. Another instance of the necessity of making the foundations for story posts and columns stronger than the continuous foundation of a wall, once came under my own observation, in the case of the enlargement of a warehouse, where the flank wall, which had stood perfectly well, having been removed, and the warehouse enlarged by building another flank wall removed further out by one bay, a range of posts was built on the foundation of the old wall, every one of which failed.

The cost of Alderman Humphrey's warehouse was about 12,000*l.* in all, or about 190*l.* to the square superficial. The cost of the restoration was about 1,000*l.*

PASSAGE OF THE ALPS—RAILWAYS IN ITALY.

IN my former communication (p. 670, vol. x.) I stated that I hoped to obtain information from the Chevalier Maus concerning his plan for forming a tunnel through the Alps. Having since been favoured by him with full particulars relating to his project, I now send you a statement of the manner in which he proposes to effect the great object he has in view—prefacing my account with a short description of the route he considers it best to adopt, and a few other particulars in connection with the subject which may be interesting to your readers.

The line of communication selected by M. Maus skirts the southern side of the Mont Cenis following the valley of the Dora and passes by the towns of Susa, Oulx, Bardoneche, &c.; thence by means of a tunnel under the ridge of the Alps it proceeds to Modana, a town situated in Savoy, on the west of that extensive chain of mountains, by a route only 30 miles in length; while the existing public thoroughfare over the Mont Cenis pass is nearly 40 miles, so that a saving of about 10 miles would be at once effected between Susa and Modana; and the time required to travel between these two places would, in the event of this project being put into execution, be reduced from eight hours (the time which the mail takes to go by the present road) to one hour and a half, a very moderate calculation for the railway—being only at the rate of twenty miles per hour.

Thus the portion of the great Savoy trunk line of railway, projected by M. Maus, would commence, on the Italian side, at the town of Susa near the confluence of the Dora with the Cenisis, a rapid stream that takes its rise in the Mont Cenis; and would form a continuation of the Turin and Susa railway, now in course of construction: the line would then pass to the right of the village of Gioglione and over the high grounds of Chaumont (where the mountainous character of the country involves the necessity of two tunnels, which are, however, of minor importance, the one being about 3,040 yards in length, and the other only 330. A short tunnel will likewise be necessary at the Fort of Exilles, in order to avoid some of the outworks, and farther on another tunnel, which, however, will be only 2,230 yards long. We thus arrive at Salbertrand, situated ten miles from Susa and nearly 1,670 feet above its level, which gives for this portion of the line an average ascending gradient of 1 in 31. Beyond this, passing Oulx, Savoulx, Beaulard, and even for some way farther on than Bardoneche, the surface of the country is remarkably uniform, and will not present any difficulty: the length of this section is about eleven miles, and its average rate of inclination 1 in 57. The remaining nine miles is a descending gradient of nearly 1 in 57, likewise. And here the line obtains a passage beneath the Alpine ridge by a tunnel of about eight miles in length, at a depth of 5,248 feet, or as nearly as possible a mile below the surface of the pass.

The three principal gradients above men-

tioned being divided into others, to suit the nature of the ground, the rates of inclination on some portions of the line will be steeper in certain cases than those named, but in no instance will they exceed 1 in 28. Throughout the whole length of the principal tunnel the gradient will be 1 in 53.

M. Maus estimates the cost of the work as follows:—

	£
For forming a heading with a machine invented by him for the purpose.....	180,000
For increasing the size of this heading, so as to form a tunnel in the usual manner through a lias rock, containing scales of mica and grains of quartz, of so compact a nature as not, apparently, to require any facing in masonry	370,880
	£550,880
For the remaining portions of the line forming approaches north and south of the proposed tunnel, viz.:—	
Cost of land	26,019
Earthwork	181,366
Bridges, culverts, &c. including the several shorter tunnels above alluded to	468,448
Rails, chain, sleepers, &c.....	171,969
Total.....	£1,398,682

Say 1,400,000*l.* altogether in round numbers.

As the projector considered that the great difficulty in the way of carrying out this bold conception would be the amount of time and labour which, according to our present system of conducting such operations, it would necessarily require, he has contrived an excavating machine, for facilitating the labour, and which, at the same time, is calculated to expedite in a very great degree the execution of this and similar works, and from the success which has attended the trials he has already made with it, he states that he has no hesitation in fixing five years as an amply sufficient period for the completion of the projected tunnels, working at both ends at the same time, although without shafts, which the height above renders impossible.

The excavating-machine consists of a frame, in which are set a number of very broad chisels, having projections on their face, acting somewhat after the manner of the hammer used by masons to restore the rough surface to the granite pavement in London when worn smooth by the traffic.

The chisels are so arranged as to cut into the face of the rock, at the extremity of the heading, five horizontal grooves, and two vertical channels bounding the former, and at right angles thereto. These grooves or channels are run one into the other, and serve to insulate four rectangular blocks of stone which will then remain attached only by one of their planes to the solid mass of the mountain-rock, from which they may readily be separated by wedges, driven with heavy hammers into the grooves.

These blocks will be about seven feet long, three feet wide, and eighteen inches in thickness.

The machine acts only upon half the width of the heading at a time, so that while it is at work cutting the grooves, which separate the blocks of stone at one side, the workmen are engaged in removing those already cut in the other half-width of the heading.

When the machine and the labourers have each completed their tasks, they mutually change places. The machine again sets to work to shape out new blocks of stone, and the workmen proceed to detach those which have just been cut, beginning by inserting the wedges at the top of the heading, and proceeding downwards: by thus prizing the stones, they are easily separated from the rock, after which they are placed on trucks, and conveyed to their destination, so that the space is again left clear for the machine to recommence its operations.

The excavating machine cuts the channels in the rock, by means of several series of chisels placed one beside the other, in straight lines: these lines of cutting tools are so arranged as to be capable of a slight lateral motion in the direction of the grooves after every stroke: the object of this is to bring the chisels to bear upon all the spaces lying between the several cutting tools situate in the same line, so as to produce not a succession of holes, but a continuous channel similar to a very wide saw-cut.

This lateral shifting of the lines of chisels, which takes place alternately from right to left, and from left to right, is caused by a corresponding motion given to the frames in which they are fixed. Each chisel is driven against the rock by a spiral string coiled round it, and which produces an effect similar to that caused by the muscles of a man in the act of throwing a javelin. This spring, driving the chisel forcibly against the rock, obliges it to act efficaciously, notwithstanding the slight inequalities at the bottom of the channel, arising from a want of uniformity in the resistance of the stone.

When the machine is in operation, the several lines of chisels are all drawn back simultaneously, by means of a species of cam, or moveable bar, which acts against projections formed on the cutting-instruments. This, by forcing back the chisels, and thus compressing the above-mentioned springs, leaves them in a position to exert a strong percussive force as soon as the pressure is removed. This is effected by suddenly raising the bars, by means of an inclined plane, situated at the proper place for the end of the stroke. As soon as the blow has been struck, the springs are again immediately compressed, as before, and the process is continued until grooves have been worked to the requisite depth into the solid substance of the rock.

Although all the chisels in each row are similarly acted upon by the moveable bar, they are, nevertheless completely independent one of the other, so that they may each be removed at pleasure, without interfering with the motion of those adjacent, or even suspending the operations of the machine; and if it be observed that one or other does not act efficiently, such may be removed, and new chisels substituted in their stead, without causing any delay or cessation.

The back and forward motion of the bar, which performs the functions of a cam, by pushing against the projections with which the several chisels are furnished, is caused, through the intermediation of rods and cranks, by two rotatory drums, which themselves are made to turn by an endless rope, communicating with a water-wheel, or other suitable motive power, situated at the entrance to the heading. The apparatus is arranged so as to enable the chisels to strike 150 blows in a minute.

The machine, at the same time, sets in motion a pump, which forces a constant supply of water into a reservoir, the upper part of which is filled with compressed air. By this means, the water is driven out in jets, through small pipes placed between the chisels, and is thus made to play upon the grooves, where it performs the double office of preventing the cutting instruments from getting heated, and removing the dust and chips of broken stone, which would otherwise accumulate in the grooves, and thereby prevent the effective working of the excavator.

The idea that suggested this substitute for manual labour in one of the most tedious of engineering operations is extremely ingenious, and the inventor of this piece of mechanism, which in my opinion is destined, in a short time, to become of general utility, is deserving of the highest credit. I must frankly own that I was not sanguine of its success previous to having examined it, but since I have heard it described, and seen how it works, I feel no hesitation in saying that it will, ere long, be applied to facilitate mining and quarrying operations, and will become extensively used in the carrying out of railway and other works.

I have no motive in extolling thus highly this invention, further than a desire to see introduced and tried on a large scale a mechanical contrivance which recommends itself on account of its extreme simplicity, and very especially because it may be considered the forerunner of a class of automaton labourers which cannot fail to benefit society, inasmuch as they inevitably tend to diminish human toil, and thereby will have the effect of raising the working man in the social scale, and enabling him to find leisure to cultivate his mental faculties; while, at the same time, it will afford increased encouragement to the progress of industry, and will enable us to undertake and prosecute successfully many splendid and important engineering projects which, without its aid, we should not even have dreamed of.

The manner in which the engineer proposes to provide for a proper supply of fresh air during the progress of the work is by means of a tubular ventilator, which he intends to lay along the bottom of the gallery. At given intervals throughout its entire length, according as they may be found necessary, he would insert fans, which he suggests might be placed on the spindles or shafts of the rollers or sheaves over which the endless rope is made to pass, so that they could constantly be worked with very little additional expense. These fans would force the air from one chamber of the tube into that immediately succeeding it, and as the ventilator would be made air-tight throughout its whole length, and only open at its extreme ends, so that the air introduced through the tube may pass out through the heading, he considers that a constant current of pure air would thus be continually maintained in the tunnel, which, by its uninterrupted circulation, would cause such incessant, successive, displacements as to prevent any possible accumulation of noxious gases or unoxygenated atmosphere.

Since writing the above, I have learned that Mr. Robert Stephenson, the eminent English engineer, when passing through Turin, on his way to Egypt, in the month of September, 1850, went to see the experimental machine, then in operation at Valdoc, and M. Maus says he recalls with much pleasure the approbation and encouragement given him by our distinguished fellow-countryman, who, in a letter addressed to the Sardinian Minister for Public Works, stated it as his opinion that it would be advisable for the Government to make a trial of the excavating-machine on an extensive scale.

The exhausted state of the Piedmontese exchequer, consequent upon the war with Austria, and the expenses of the great works connected with the line of railway between Genoa and Turin, have hitherto precluded the possibility of putting the invention to the test of practice in the actual execution of the works proposed. Nevertheless, now that the question of forming lines of railway through the Alps is every day becoming of greater importance, the time is probably not far distant when we shall see active measures taken for the realisation of this important proposition.

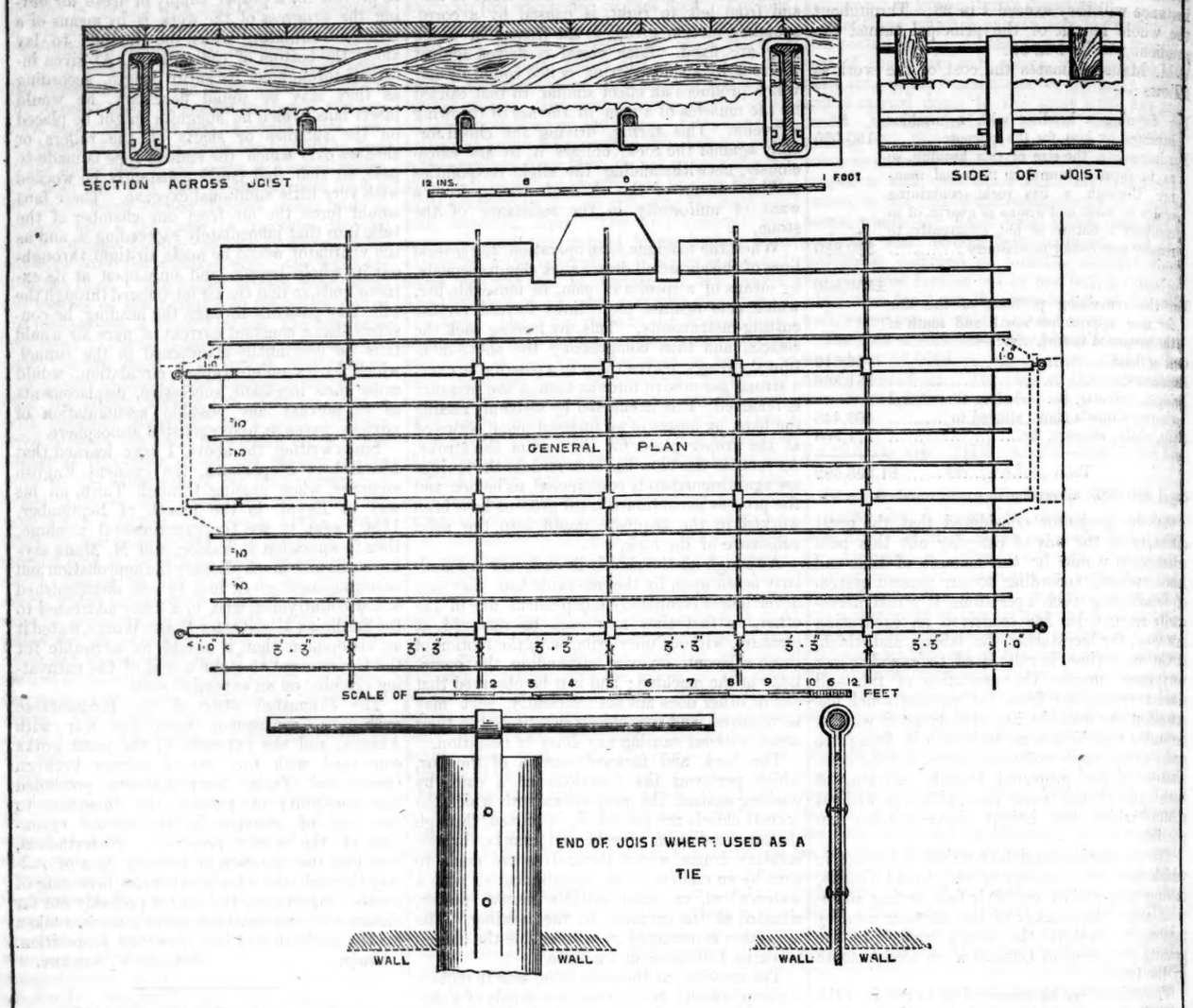
Italy. WM. H. V. SANKEY.

THE CLOCK AT THE 'CHANGE.

I AM sorry that your correspondent, who has pointed out the disfiguring excrescences on the face of the Royal Exchange, did not at the same time draw attention to another remarkable feature, which appears to be somewhat of an anomaly in that celebrated building. The clock, which is said to be a most perfect work of its kind, and upon which, I believe, a very large sum was expended, was supposed to be designed, not only for the use of those who have business on 'Change, but also as a standard to regulate the time for the whole City of London. Yet, it is actually so placed, that it cannot be seen from any part of Cornhill, or either of the surrounding streets, except from one single spot. Any person coming from Princes-street or the Bank, and wishing to set his watch, must circumambulate the whole building, until he comes to the corner of Birchin-lane, before he can accomplish his purpose; and, what is still more extraordinary, the clock is equally useless to the greater part of the frequenters of the Exchange, for it is shut out from at least three-fourths of the quadrangle and the arcade surrounding it. Such a want of foresight as this is surely a great reproach. A MIDDLESEX MAGISTRATE.

THE PENNSYLVANIA ACADEMY OF FINE ARTS, at Philadelphia, have elected Sir Charles Eastlake, Mr. Copley Fielding, Mr. Dyce, Mr. Cousins, Mr. George Godwin, Mr. J. P. Knight, Mr. Maclise, Sir Edwin Landseer, Mr. Stanfield, Mr. John Ruskin, Mr. Butterfield, and Mr. H. Warren, honorary members of the Academy. The Pennsylvania Academy of Fine Arts is the oldest artistic body in the United States. The President, the Hon. Henry Gilpin, is now in London, seeking to establish for America more intimate relationships with British artists and Academies.

FRENCH METHOD OF IRON FLOORING.



FRENCH SYSTEM OF IRON FLOORS.

THESE floors are composed of joists, slightly arched in the proportion of 0·005 metre in the metre; they are placed at the distance of 1·00 metre from centre to centre, and are united by *entretoises*, or flat bars of iron, at the same distance apart. These entretoises rest on the lower projecting edges of the joists, and are secured in that position by passing into, and being fastened to, a band round the joists.

On the entretoises are tied (by means of wire) square iron rods, the same length as the joists.

Certain joists have ends fitted to act specially as ties, as have also the entretoises; thus the whole being firmly built into the walls, the sides of the house are effectually united. The iron-work is then painted, and afterwards filled with pottery bedded in plaster, or with plaster alone, by which process a ceiling is formed to the apartment below: this portion of the work is done as soon as the walls are of sufficient height to receive it.

Where a wooden floor is required, it is nailed to small joists notched in between the ironwork.

The joists are of rolled iron, regulated in their size and depth by their span, the other portions are made in a manner to insure their going together without the aid of forge or file at the place of construction.

The whole, complete, forms a floor at once light and fire-proof, occupying about 15 per cent. less space, and adding (in Paris) little to the ordinary cost of wooden construction.

The accompanying drawing is for a span of from 5·00 to 6·00 metres, upon the system of Mr. Thuasne. H. H. B.

ON THE HEATING OF OUR CITIES AND TOWNS, &c.

If we reckon the number of individuals to be provided for daily with meat, clothing, and warmed houses by means of fire, and reflect upon the subject, we naturally inquire why no means have been yet adopted to mitigate the annual cost of heating our abodes, &c. The charges and attendant expenses of fuel and its use are numerous. According to the operation of one of the principles of civilization (if progressive civilization), the necessaries of life generally (instance paper) become cheaper as the demand for them increases; but hitherto there has been no means of supplying us either with heat or its materials by the operation of that principle; nor can we to any extent acknowledge the benefit of any improvement from which we derive it as we do in other manufactures by the application of science; and besides, we have become so reconciled to the defects of this individual practice by general usage, that the habit almost precludes our hoping to witness the whole separate fire system immerging into one grand concern.

Companies afford us light and water, which they make available at any moment, and at less expense than it could be effected by individuals; and although large interests and thriving too, are connected by means of the present system of separate fires in houses, yet let us not reject or demur to a scientific arrangement for consuming our fuel and supplying it in a form, and by a system adequate for the manufacture of heat upon an extensive scale.

Why object to thus heating the principal rooms adjoining main streets, &c. because it could be done at infinitely less expense than they now are at present by individual exertion, &c.; besides, by having the prepared element on hand, rooms and apartments could be heated more quickly than now.

The smoke nuisance would gradually disappear.

The degree of heat, the most beneficial for our rooms, might then be indicated by a thermometer, and more than the required degree would be injurious: how improved would be the state of rooms for health and comfort. All houses require fire and water—the latter, if heated, would supersede a great demand for the former for that purpose alone.

We are persuaded that capital and ability will accomplish this object, at an almost incredible diminution of our present outlays, for upon reviewing the various forms and changes, fire or heat (not smoky heat) assumes, and its numerous and varying degrees of intensity when manufactured from materials of various properties and their combination, we recognise the probability of soon having it in such form and quantity, to almost each of our wants, as to supersede, in part at least, the utility of so many separate fires for individual establishments.

Fire, air, and water may all be conveyed to any point from an original manufacturing source, provided we apply science and such apparatus as it suggests.

We may render the apparent destructiveness of heat applicable and serviceable to heating water: these elements accompany one another from one point to another, and travelling side by side, either in a direct or circuitous course,

when one surrounds the other, are harmless. This arrangement, by varying the surrounding of each other at different points not only renders to each the moving principle, but removes the dangerous tendency or power of fire to escape, and corrects it under unfavourable circumstances, should they ever occur, by a momentary quenching.

Thus arranged, the action of water and fire would be incessant and onward to the escapes or ranges. VITRIFIED CLAY.

SHIPMENT OF MARBLE FROM CARRARA.

THOSE who have visited the marble quarries at Carrara, and seen the immense and laborious traffic carried on there, must have been surprised, and unfavourably so, at witnessing the process of shipping the blocks.

The coasting vessels to be loaded are drawn up on the beach, and shears erected alongside, by means of which, and a clumsy capstan and tackle, the blocks are hoisted on board. With blocks of ordinary dimensions, this is the plan adopted, but when these happen to be of extra sizes, another most singular method is employed. The vessel in which a large block is to be embarked, after being hauled up on the beach, has her masts taken out, and the hold filled with sand, an inclined plane of the same material being raised from the shore to the side of the craft: these preparations completed, oxen are yoked to a sledge on which the block is placed: it is then dragged up the incline, and ultimately deposited in the centre of the hatchway. The sand is then thrown out, and the marble gradually lowers into its place. The expense and delay connected with this system are beyond conception. Weeks are often lost waiting for fine weather, and sufficient depth of water for relaunching the loaded craft, which, if of a large size, as a precaution against her capsizing, is bound round with empty casks. Oxen and men then lend their assistance, and by their united efforts the vessel is dragged into the sea.

Such is the system that has existed to the present day, which appears the more extraordinary, when it is considered that nearly one thousand tons of marble are shipped monthly.

The maxim of "better late than never" has, however, had its illustration here, as we hear from a recent visitor to the newly-erected Walton Pier, constructed by a marble merchant of that name, and American consul, at his sole expense.

This bold and enterprising work, forming a double line of rails, is constructed on piles of from 60 to 90 feet in length, and extends into the sea nearly 800 feet. The timber for its fabrication was brought from the Apennines beyond Florence, down the Arno to Leghorn, and from thence, by boat, to the works. It affords us additional pleasure to add, that all the trade may take advantage of its convenience on paying a moderate toll.

His Royal Highness the Duke of Modena gave a ready permission to Mr. Walton to construct the pier, and remitted half the duties on all the materials imported and applied to its construction. The engineer, Mr. Thomas Robertson, of Leghorn, was enabled to complete the undertaking in thirteen months. He conducted our informant over the works, and explained the various methods adopted for carrying out the design—no easy task in the face of the violent storms which so frequently occur on that open coast.

We have been informed, that the Duke of Modena has granted permission for the formation of a railway from Mr. Walton's pier to the marble quarries and the city of Massa. This is a move in the right direction, and we congratulate Mr. Walton in having originated and executed an improvement so much required to develop the commerce of Carrara as the pier we have attempted to describe will doubtless prove.

There are now two powerful cranes, of improved construction, at full work on the pier.

NEW CHURCH AT CHATHAM.—The Earl of Shaftesbury has laid the foundation-stone of a new church, dedicated to St. Paul, in the parish of Chatham.

THE LATE M. BLOUET, ARCHITECT.

MONSIEUR BLOUET, architect, member of the Institute of France, and honorary and corresponding member of the Royal Institute of British Architects, recently died at Paris, and was buried a few days since at the cemetery of Montparnasse. The Secretary of the Academy of Fine Arts in the name of the Institute; M. Damont, secretary of the School of Fine Arts, as representative of the professors; M. Caristie, as member of the Council of Buildings; M. Rohault de Fleury, vice-president of the Central Society of Architects, and M. Marcellin, in the name of M. Blouet's pupils, spoke in most touching terms of the career of the respected deceased, and in a manner to impress the minds of all who were present on the melancholy occasion.

When a pupil, it appears that M. Blouet carried off most of the prizes at the school, and above all, the "grand prize"—which entitled him to be a student at Rome. He there crowned his various studies by his restoration of the Baths of Caracalla, which was published under the auspices of the Minister of the Interior at the recommendation of the Academy, and is a valuable and interesting work.

Entrusted with the direction of the artistic part of the expedition in the Morea, he collected together many valuable materials for this work.

Being sent by the government to America, to study there the cellular prisons, he brought back with him some valuable and judiciously selected documents on the subject.

As Professor of Theory at the School of Fine Arts, M. Blouet distinguished himself by the correctness of his views, the rectitude of his principles, and by his zeal and devotion to the fulfilment of his studies. Head of a numerous private school, the pupils under him were noted for their success amongst various schools, and those of the Acadamy of Fine Arts.

Besides the theoretic works in which M. Blouet was engaged, he directed the important publication of a supplementary volume on the Art of Building, by Rondelet, and revised a new edition of this remarkable work. L'Arc de l'Etoile, that colossal and noble monument, the erection of which had fallen into the hands of several generations of architects, was completed by M. Blouet. The crowning ornaments only, for which he composed several beautiful designs, remain unexecuted. Nevertheless, the suitableness of his selection of subjects for the sculpture, the simplicity of their lines, and the harmony of their proportions with the mass and the details of the architecture, would have surely fixed the choice of the government on one of these compositions.

M. Blouet had for several years filled the post of architect to the Imperial Palace at Fontainebleau, where he carried out some difficult restorations. The Emperor in making a present to that town, at his last visit there, of 200,000f. to complete the sum necessary for the erection of a church, worthy of that residence, committed it to the hands of M. Blouet. If the monarch in thus giving to this architect so striking a testimony of his appreciation of his talent, has not been able to procure for M. Blouet the connection of his name with an edifice worthy of himself and his sovereign, at least the artist has found in the prospect of the realization of this design the most agreeable occupation and the greatest satisfaction to soothe the last moments of his too short life and career.*

INDUSTRIAL EDUCATION AT SHREWSBURY.—Dr. Lyon Playfair lately visited Shrewsbury, on invitation, as secretary to the Department of Practical Science under the Board of Trade, in order to explain the views of the Government on the subject of industrial education, and to afford such other information as was necessary. Nearly forty gentlemen met Dr. Playfair at the Royal Free Grammar School, where the headmaster, Dr. Kennedy, provided an elegant luncheon. The Rev. Dr. Kennedy presided, and in course of the meeting it was proposed to unite the several scientific and mechanics' institutions of Shrewsbury under one management, if possible, as a preliminary to further steps being taken for the promotion of industrial education in the arts and sciences.

* This notice, gathered from the Paris journals, was read by Professor Donaldson at the Institute of Architects, on Monday evening last.

SANITARY DANGERS.—PURE WATER.

A PARAGRAPH, under this title, extracted from the *Leader*, and going the round of the newspapers, may do some damage to the cause of Sanitary Reform, so far as regards the substitution of good or pure water for Thames ditch-water, or other "cat and dog flavoured" *pabulum mortis*, such as is supplied to more towns than London. Iodine is a well-known medicinal or sanitary agent, which is now found, along with its confrere Bromine, to pervade, not only many waters, but a multitude of other substances naturally apt to get into the human and other animal systems, and even the air we breathe; so much so, and of such importance in the general economy of nature are these halogens, chlorine, or the true spirit of salt, inclusive, that they seem to constitute a sort of "sanguis naturæ," as these very agents were actually called in ancient times, when, though erroneously imagined to be modern discoveries, they were perfectly well known to natural philosophers, as was shown some years since in the first of a series of articles on the metals, in our columns. Now, it has been known for some time, that the absence of iodine in Alpine waters is a cause of goître and cretinism; and a singular collateral proof of this has lately occurred, and we give it in the words of the *Leader*:—

"Fully and Saillon, two villages on the right bank of the Rhone, although almost touching each other, have long been remarkable; Fully being a notorious cradle of cretinism, Saillon as notoriously free from cretinism or goître. Of late years, however, Saillon has become infected. And the reason, say the inhabitants, is none other than the *sanitary* (?) measures recently taken to *purify* the water. Formerly the water of the Salente, before reaching the village, was wont to mingle with the streams of a hot spring, named *source de fer*. To bring *purer* water into the village, they altered its course, and turned it away from the hot spring. Observers declared that the date of the appearance of goître in Saillon coincides pretty nearly with that of their being blessed with 'pure water.' M. Chatin investigated the matter; he analysed the water of the Salente, the water of the hot spring, and the water where the two springs mingle; the result confirmed his previous publications; he found the Salente water free from iodine, and the water of the hot spring and of the two mingled strongly impregnated with it. The conclusion is irresistible: wherever the water in these districts is free from iodine, cretinism and goître are observed among the inhabitants; wherever it is impregnated with iodine, these diseases are absent. To 'purify water' is not always to make it better adapted to our organism; and there may be some physiological instinct in that paradoxical lady's announcement—'I like water with a dead-cat-and-dog flavour in it.'"

The deprival of a village, in such a vicinity especially, of water from hot springs, in customary domestic use, without analysis or sanitary consideration, even while under sanitary pretences, was most injudicious, but certainly constitutes one of the oddest sidelong or implied arguments *versus* sanitary reform in water supply and in favour of cat-and-dog flavours and the let-*bad*-alone system that we ever recollect to have heard of. Had such hot springs as those alluded to been *infused into* the water heretofore supplied *to Fully*, that would have been a *sanitary* improvement indeed; but the withdrawal of them from that supplied to Saillon deserved no such name, and was, on the contrary, an insanitary measure, in express contradiction to the objects and views of sanitary reformers, who do not necessarily require "pure water" to be without any impregnation whatever, were it even possible to procure it in such a state, which we have long since shown to be impracticable—even pure rain-water being believed to contain ammonia before it has descended out of the atmosphere, in which, moreover, it absorbs carbonic acid gas, if not oxygen, and nitrogen too. The case on the Rhone, in fact, constitutes conversely one of the strongest possible arguments in favour of the sanitary influence of a change in source and quality of water supply, wherever that may be shown to be really requisite.

PROVINCIAL NEWS.

Yarmouth.—The extensive works in connection with the Great Yarmouth Waterworks and the Wellington Pier Company will shortly be commenced. At preliminary meetings of the directors, held subsequently to the Act receiving the Royal Assent, it was announced that Messrs. Cochrane and Co.'s tender for iron pipes required for the former company was accepted; and that Mr. Ashcroft, the engineer, had concluded contracts for the timber, &c. for the latter.

Wigston Magna.—The spire of the church of St. Wolstan in this parish has been completed, and the vane, the spindle of which forms part of the lightning conductor, fixed. The building committee, however, gave instructions to Messrs. Walker and Goodacre, the architects, to enter into a second contract with Messrs. Lindley and Firn for repairing the tower from the spring of the belfry windows downwards, so that the contractors might have the advantage of the scaffolding which they had erected for the rebuilding of the spire. There still remains a sum of 130*l.* to be raised in order to enable the committee to complete the undertaking.

Sonning.—The restoration of the old church of St. Andrew, Sonning, has been completed, and the edifice reopened. The cost, amounting to several thousand pounds, will be defrayed by voluntary contributions. Portions of the arcades in the nave have been rebuilt; a new south arcade in the chancel has replaced three brick arches of debased design; and the eastern arch in the north arcade has been restored by Mr. Phillip, sculptor, who has also carved the figure of St. Andrew, in the north porch, and the foliage generally throughout the church. A new nave roof has been raised upon a clerestory, lighted by circular sex-foiled windows,—and, with few exceptions, the windows generally throughout the church are new. The walls, externally, have been cased with black flint to correspond with the south aisle: the roofs of aisles have been opened and their timbers shown, except in the chancel, where the ceiling is panneled, the eastern portion being stellated and its mouldings intersected with carved bosses, by Rattee, of Cambridge, who has furnished the greater portion of the wood carving. The whole of the fittings have been constructed of old oak. Messrs. Minton's tiles pave the sanctuary, and the eastern window is filled with painted glass by Wailes, of Newcastle, the subject being the Transfiguration. Mr. Dell, of Sonning, was the contractor, and Messrs. Wheeler, of Reading, executed all the stone work. The works were superintended by Mr. Woodyer.

Oxford.—The church of St. Paul in this city, built for the relief of the parish churches of St. Giles and St. Thomas about the year 1839, had originally no chancel, the altar being placed in a recess at the east end. The new chancel, which was consecrated by the bishop of the diocese on Tuesday, the 31st ult. has been built principally by the munificence of the present vicar, the Rev. Alfred Hackman. It is divided into chancel and sacrarium, the latter having an apsidal termination, and being covered with a semi-dome. The sacrarium is distinguished by being raised three steps above the chancel, by the reredos, which has been extended from the size of the original, by the marble pavement, and by the lining of the walls above the reredos with Caen stone, and the pilasters having carved capitals. The entrance of the chancel has an arch, beneath which are two steps, thus elevating the altar five steps besides the platform upon which it stands. The upper portion of the sacrarium has three circular-headed windows, the centre of which contains, in medallions, the Crucifixion, the Holy Sepulchre, and the Last Supper; the side windows having figures of St. Peter and St. Paul, with the emblems of the Evangelists. This glass was executed by Willemont, and is a fine specimen of his skill. The ceiling is finished a deep blue, and studded with stars, the form of which and their application are taken from the church of St. Nazarro e Celso Ravenna; they are supposed to be of the fifth century. In the semi-dome they are gathered in the form of a cross. The works have been executed by Messrs. Castle and Son, builders, and the stall-benches by Messrs. Margetts and Eyles. The fronts of the stalls, with seats for the choir, are not yet completed, but are being executed in cast iron by the Coalbrookdale company. The works have been executed from the design of Mr. Edward G. Bruton.

Southampton.—Public baths and washhouses are about to be established here by a joint-stock company. The corporation have given a piece of land over which the tide flows. No rent is to be paid, but poor people are to be allowed to bathe for one penny each after five o'clock in the evening. The baths are to be on the model of those in Paris, and have been projected by a gentleman long resident there.

Newland (Worcestershire).—The late Earl Beauchamp devised 60,000*l.* towards erecting and endowing almshouses at Newland, on condition that within twelve months from his decease a proper site for such almshouses be provided by some other person or persons. Should this condition be unfulfilled, the will directs the legacy to lapse to the trustees of St. George's Hospital, Middlesex. The earl died on 22nd January last.

Chippenham.—A premium having been offered for the best design for Langley Burrell New District Church, a number of drawings and estimates have been sent in, and three have been selected for final decision.

Hay.—The foundation-stone of Llowes new church was laid on 19th ult. by Mrs. De Winton, of Maesllock Castle, and Mrs. Beavan, of Brynyr-hydd House, under the superintendence of Mr. W. J. Worthington, of London, architect. The style of building is Early English. The contractor, Mr. William Jones, of Brecon, has just completed the adjoining parish church of Clyro.

Cardiff.—Great exertions have been made to raise subscriptions for the Cardiff Sailors' Home, by the honorary secretaries, Lieut. Crewe Read and Mr. Ware, with many other gentlemen of this town; but their praiseworthy endeavours have proved unavailing. Under these circumstances the trustees of the Marquis of Bute have decided to carry out this much-desired institution themselves. A church, the presentation of the Marchioness of Bute, is to be attached. It is anticipated that the works will be proceeded with immediately.——At last there is some prospect of having this town drained. It was decided a fortnight ago to refer the question to Sir William Cubitt; but that gentleman having declined the office, it is to be placed in the hands of Mr. Hawkeshaw, whose decision is to be final.——The proposed Welsh church here will shortly be commenced, as the trustees of the Bute estates have given a site. The Marchioness of Bute has subscribed very handsomely towards this building.

Leamington.—The chief stone of the Royal Leamington Literary and Scientific Institution and Public Hall was laid on Monday in last week, with great masonic formality, by the Provincial Grand Master of the Warwickshire lodge of freemasons.

Leigh.—On Thursday week, the foundation stone of Christ Church, Pennington, was laid by Lord Lilford. The total cost is calculated at 4,300*l.*: a parsonage-house is also proposed to be erected, but the subscriptions still fall short of the amount required for the completion of the undertaking. Mr. Shellard, of Manchester, is the architect; Mr. Foggett, the builder; and Messrs. Ellis and Hinchcliffe, sub-contractors for the masonry. The style of architecture is Perpendicular. The edifice is to be erected from Yorkshire white stone: the portico is already erected. The whole will comprise a nave and two side aisles, with the chancel at the east end, a tower at the west, and a porch on the south side. Externally the aisles will be each divided into six bays, each bay containing a large window, and a buttress being placed between each. The clerestory nave will contain six pointed windows on each side. The chancel will be nearly as high as the nave, and of the same width. It is divided into two bays on the south side; each bay will contain a window with buttress between. The east end will be occupied by a large window, with perpendicular tracery, the whole of the walls terminating in a plain parapet. The tower will rise 70 or 80 feet, and consist of three stages, with angle buttresses at each corner. The parapet will be embattled. Internally the body of the church will be separated from the aisles by six pointed arches, rising from octagonal piers of stone. The chancel will be divided from nave by a moulded archway, and the floor slightly raised. The roofs will be open timbered, and, together with the pewing and other wood work, stained of a dark colour and varnished. The principal entrances are at the west end, through the tower, and through the south porch. The church will accommodate 800 persons. The nave and aisles are 70 feet long by 50 feet wide. The works will be completed in a few months.

Leek.—At a vestry meeting the parishioners, last week, resolved to submit to a rate of 1d. on the pound for the establishment of baths and washhouses. The chairman, Mr. John Davenport, of Westwood Hall, gave a detailed estimate of the cost of erecting baths, according to the plans of Messrs. Francis, of London, who were the architects of St. Luke's Church, Leek, which plans were exhibited in the vestry-room. The estimated total cost was 1,760*l.* including all requisite apparatus and land. The amount promised by voluntary contribution was between 800*l.* and 900*l.* It is proposed to borrow the remainder from Government, to be repaid out of the rates in twenty years. ——The new building recently erected in Derby-street, at the corner of Russell-street, for the Savings Bank, has been opened. The building is of Italian character, and contains accommodation for the actuary. It was designed by Mr. W. Sugden, of Leek, architect, under whose superintendence the building was carried on and completed. The cost, exclusive of the site, is about 900*l.*

Claughton.—"We understand," says the *Liverpool Journal*, "that a contract has just been entered into for the erection of a magnificent mansion, near Lingdale House, in Claughton, for Mr. Robinson, iron merchant, of Liverpool, a gentleman connected with the Coalbrookdale Company. The design, plans, and specifications are by Messrs. W. and T. Scott, architects, and the contractor is Mr. James Routledge, of Tranmere. We understand the cost of the mansion and offices will be nearly 5,000*l.*

Leeds.—The chief stone of a new Roman Catholic church of St. Mary was laid on Tuesday in last week, on the highest ground of Richmond-hill, at the east end of Leeds, by Dr. Briggs, the bishop, assisted by about twenty priests. The architect is Mr. J. A. Hanson, of Edinburgh and Preston, and the style will be Geometric. It is intended at once to complete the nave, leaving the aisles to be completed when the congregation require additional accommodation. The nave will seat 700 persons, but when the building is completed it will accommodate 3,000. The nave and aisles will be 120 feet long, by 60 wide, with a height of 100 feet to the ridge, supported by clustered pillars, each 35 feet high. Distributed over the edifice there will be a cloister, confessionals, a sanctuary, and various chapels. At the north-west corner will stand a tower and spire, reaching an elevation of nearly 300 feet. Connected with the chapel by a cloister, will be a new residence for the Religious—that is, the body of priests who will perform the ministrations in St. Mary's, to which gardens will be attached, on the westerly side of which a terrace will be constructed, commanding an extensive view of the town and its suburbs.

Skipton.—On Tuesday in week before last, the church of St. Mary, Embsay, was consecrated by the Bishop of Ripon. The church is built in the perpendicular style, from a design by Mr. T. Shaw, of Leeds, architect.

Glasgow.—On Thursday week, the foundation and key-stones of the Kelvin Bridge were laid in presence of a numerous assemblage. When this new bridge is finished, the connection of Hillhead and Gilmourhill with the city will be complete. The following are the dimensions of the bridge:—Clear span, 70 feet; breadth over parapet, 37 feet 6 inches; height of arch from visible spring, 13 feet 6 inches.

Musselburgh.—A monument is to be erected to the late Dr. Moir, the "Delta" of *Blackwood's Magazine*, at Musselburgh, near Edinburgh, at which village he dwelt. The monu-

ment will consist of a statue of the poet, 7 feet in height, on a pedestal 10 feet in height. The work is to be executed by Mr. A. H. Ritchie, of Edinburgh.

Grangemouth.—At Grangemouth, in Scotland, a new school and hall has been completed and opened. It is 80 feet long by 30 feet wide, with a ceiling 20 feet in height, and is said to be the largest hall in the county, accommodating from 700 to 800 persons. Besides school-rooms, the hall is intended for public meetings. It is lighted by twenty large windows, and at night by four gasaliers, each with four branches, and twenty brackets round the walls. The building has been designed, contracted for, and finished by inhabitants of the town. It was opened on Tuesday week with a grand concert.

Elgin.—Efforts are being made by the Building Committee of the new Free Church, according to the *Forres Gazette*, to complete the original design by surmounting the north façade with the spire, at an expense of 400*l*. The edifice is now in course of erection: the side walls are levelled, and the builders are about to commence the gables and spire. Mr. Lamb, contractor for the mason work, has a numerous staff of builders and hewers engaged on it. The material is from the Hospital Quarry in the vicinity. A manse for the ministers is also proposed to be erected.

THE ORTHOGRAPHIC BEAUTY OF THE PARTHENON REFERRED TO A LAW OF NATURE.

UNDER this title Mr. D. R. Hay has printed, with additions, the paper by him which was read at the Institute of Architects in February last.* We have already given the substance of the essay, with a summary of the remarks made on it,† and will now add the result of an examination of the theory, by one who has given considerable attention to the subject, in his own words.

We may say that the paper is written in a good spirit, the author assuring his readers, in the words of an ancient philosopher, that,—"If any one can prove that he has found any method yet better and more suitable, he shall be treated, not as an enemy, but as a friend, and his ideas shall prevail."

In my examination of Mr. Hay's theory of the Parthenon, contained in his paper read before the Institute on Feb. 7th, I confined myself to six points, and the results are as follow:—

1. In his theory, the height of the architrave and frieze, taken together, equals the length of the front, which I shall call F, multiplied by tan. $5° = F$ tan. $5° = 8{\cdot}866$ ft. Whilst the measured dimension $= 8{\cdot}842$.

2. The ordinary intercolumniation, according to the theory 14·037 ft. Measured 14·090.

3. Height of pediment to the top of cymatium $= F$ tan. $30° = 58{\cdot}505$. Measured height, 59·127.

4. Height of column, *without its abacus*, $= F$ tan. $18° = 32{\cdot}926$ ft. Measured dimension from the angle columns, 33·104, or from the middle columns, 33·069.

5. Height of pediment, including cymatium, above the level line drawn from the extremities of the cornice,

$$= \frac{\frac{F}{2}\left(2 \text{ tan. } \frac{\pi}{6} - \text{tan. } \frac{\pi}{8}\right)}{1 + \frac{\text{tan. } \frac{\pi}{8}}{\text{tan. } \frac{\pi}{14}}} = 13.329 \text{ ft.}$$

The measured dimension is 14·073.

6. The breadth of the triglyph, according to the theory is 2·559ft. The measured dimension 2·766.

In all the above cases approximations may also be made by simple relations of the kinds hitherto usually recognised.

1. The whole entablature $= \frac{4}{7} F$, and the cornice being two-elevenths of this, there results for the frieze and architrave 8·844. Measured, 8·842.

2. Ordinary intercolumniation $= 2\frac{1}{4}$ diameters of the column $= 14{\cdot}075$. Measured, 14·090.

3. Height to top of cymatium

$$= \frac{F\ 7}{12} = 59{\cdot}125$$

Measured, 59·127.

4. Height of column.—We may obtain this by again taking the ratio $\frac{7}{12}$, multiplied into the whole height, *i.e.* $59.125 \times \frac{7}{12}$, to give the height to the top of the abacus of the middle columns above the angles of the stylobate, that is, including the rise due to the curvature, and by deducting the latter for the *net* height of the columns, *including the abacus*, we get 34.256. The angle columns measure 34·253, and those in the middle of the fronts 34·218. The thickness of the abacus is 1,149.

5. Height of the pediment.—This is the same as the ordinary intercolumniation, viz. 14·075. Measured, 14·073.

6. The breadth of the triglyph seems, in common with the subordinate dimensions, to be determined by minutes or sixtieths of the column. Here $26\frac{1}{4}$m. $= 2{\cdot}763$, and the breadth of the triglyph is 2·766. F. C. PENROSE.

* Blackwood and Sons, Edinburgh and London. 1853.
† See p. 163, ante.

THE LABOUR QUESTION.

AT Birmingham the journeymen joiners and carpenters have at length agreed to accept the advance of 3d. a day offered by the master builders, on the understanding that in course of two or three months, if provisions and labour continue to advance, the masters will feel disposed to give the other penny asked for by the men. Meantime, also, the masters agree to closing on Saturday at 5 o'clock instead of half-past 5.

At Walsall, the journeymen carpenters and joiners held a meeting on Tuesday in last week, when it was resolved to solicit from their employers an advance of 2s. a week upon their present wages, "in consideration of the increased and still increasing price of provisions."

The Salisbury bricklayers, who struck on Saturday week, have got an increase of 2s. a week, and the labourers 1s. making the wages now 20s. and 12s. The carpenters during the previous week had obtained a like advance of 2s. and 1s. a week on their wages.

At Carlisle, numerous building operations have been retarded by a general turn-out of bricklayers' labourers, who demand an increase of 3s. a week on their wages, which the masters are not inclined to give. A labourer has been since committed to prison for a month, with hard labour, for intimidation of his fellow-workmen.

A question on the law of wages and dismissal was decided at the Town-hall, Wolverhampton, in course of last week, when a cleaner of engines summoned the Shrewsbury and Birmingham Railway Company for nonpayment of 1*l*. 13s. 6d. wages. For the defence, the Hon. E. Petre, superintendent of the locomotive department, stated that the complainant had been in the employ of the company for a few weeks, and at the time of his entering into their service he signed his name in a book, to which was attached the rules for the regulation of the workmen at the Stafford-road works. The first rule was to the effect, that if a workman committed any of the offences specified in the rules, he should be liable to dismissal, suspension, or fine. The complainant had infringed one of the rules, whereby an engine had been damaged to the extent of upwards of 30*l*. and had therefore been dismissed by him, and fined the amount of his wages towards the damage done. The magistrates were of opinion that he (Mr. Petre) had not power to dismiss and also to fine, and ordered the payment of the sum claimed. Mr. Petre then applied for a summons against the complainant for damage done to the engine, which was granted.

A writer in the *Liverpool Journal*, who congratulates the workmen generally on the present movement, nevertheless thinks it right to caution them on the subject of capital and profits, and in course of his remarks, points to the conclusion, that since bank interest on money lent to builders and other employers is low, the profits made by employers must also be low, otherwise competition for capital would inevitably raise the rate of interest, which therefore would be high were profits really high. "You see merchants ride in coaches," he continues, "cotton spinners purchase estates; master builders vieing with both,—and therefore, you are sceptical. You see the exceptions, and you draw a general inference. The majority of those engaged in trade, commerce, and manufactures, do not ride in coaches, or purchase estates; they live; and a list of the landed gentry, and a return of private vehicles, surprise in showing how few have emerged from the commercial and manufacturing class into the aristocratic. For the reason stated, the gains of industrial employments are absorbed in the creation of augmented means of employing labour. As wealth accumulates, competition grows more active, and the inevitable sequence is, low profits. . . . . The rate of interest is now at a minimum. An advance in the rate of wages, or an advance in the price of material, has a necessary sequence—a rise in the price of manufactured goods. It matters not one farthing to the employer whether he pays his operatives 20s. or 30s. provided the wages paid do not curtail the quantity consumed of the manufactured article. Within a certain range the consumer must pay: when consumption diminishes fewer operatives are employed. Hence the conclusion that *the rise in the rate of wages is not always a gain*. Labour constitutes a large item in value; and, as the labourer is a consumer, he contributes to the payment of his own wages. Except in cases of urgency, where the occasion was or is temporary, the advance has been 2s. a week,—a very moderate addition; but you can hardly have failed to see that the general rise in wages has affected this increase, and is likely to affect it still more. House-rent has risen, or will rise; wearing apparel will rise, or has risen; and an advance is inevitable in every article, into the price of which labour enters. When you count up the advances, 2s. are seriously invaded; and, for the reason I have given, another advance of 2s. would have a similar result, and might go further—stop consumption by raising prices. There is matter here for serious reflection."

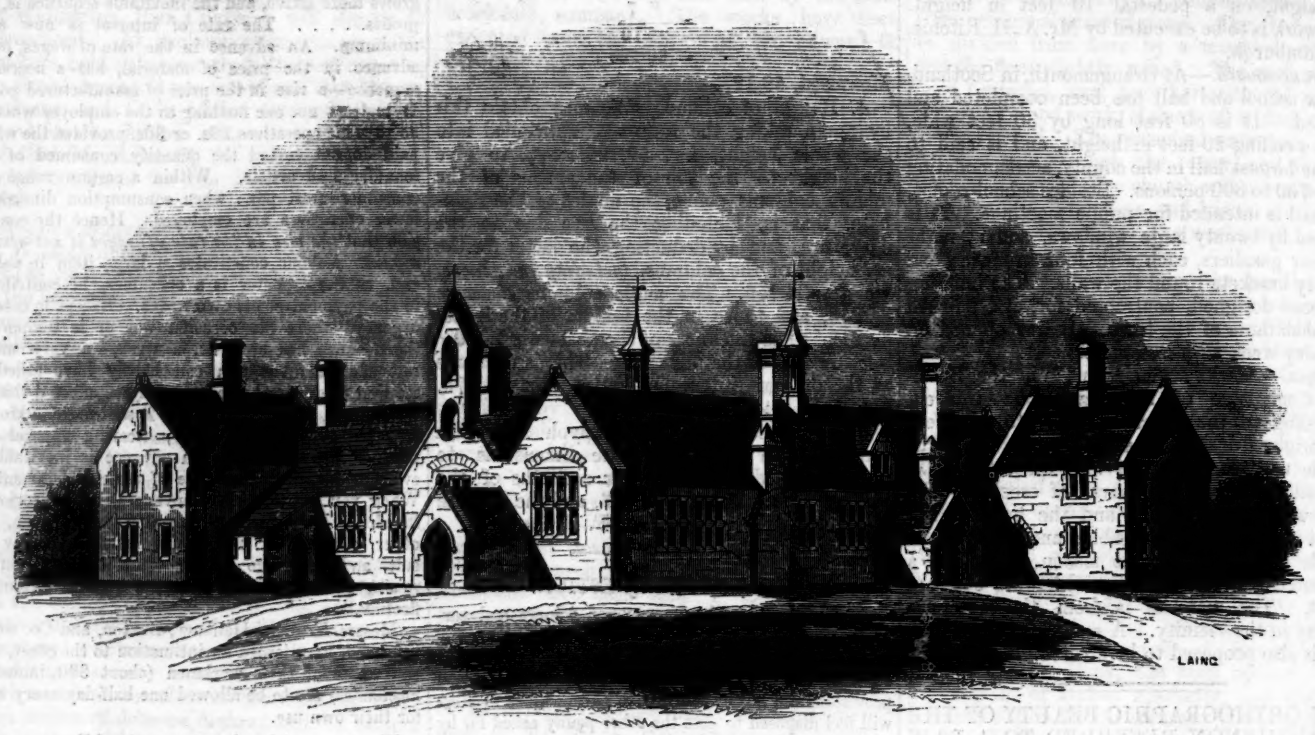
Messrs. Truman, Hanbury, Buxton, and Co. we are informed, have issued an intimation to the effect, that the whole of their workmen (about 300, including mechanics) are to be allowed one half-day every week for their own use.

Wages are rising in many parts of France: about forty workmen, employed on the fortifications of Avesnes, lately struck for an increase.

IT is with the greatest interest that I have weekly read your observations on the wages movement, and I am glad to see that there is some one to put forward the interest of the superior workman. Having had fifteen years' experience as a carpenter, joiner, &c. in builders' shops, and in some of the first jobs in the country, I think it but just to mention one or two of the grievances which the first-class workman is labouring under. In the first place you go to a builder and ask for a job, when he tells you he wants a good tradesman. You go to work, and soon find that out of a score of men in the shop, there is not more than one good workman—often not one,—and not one in twenty that has got anything like a good chest of tools; and what is the remuneration you get for having in your possession a first-rate chest of tools, and knowledge to use them in any work that may be put before you?—why, the poor paltry sum of about two shillings more than the poorest workman in the shop! It is no solitary case this, but an every-day affair. If you say you cannot work for the wages, you are told that they cannot give more, as it would be the means of rasing wages generally; but they will own that you are worth more, but would sooner you left than advance your wages, and give you what in justice is your due. And again, as to piecework, oftentimes have I taken piecework at a fair price, and could earn from five to eight shillings per day; but how was it the next time?—you were cut down in price till you were not able to get more than four shillings, or not that. Is that justice to the man who has studied his business, and done all he could to advance himself in all that constitutes a good workman. Most builders that I have had any conversation with say, they want to see more skilled workmen in the country: but first let them do justice to those they have. If you were to question fifty of the best joiners in the country, they would tell you that the builders generally are the greatest enemies to the advancement of skilled workmen. There are many of my fellow workmen that I have met in different jobs, superior men, who have left the trade disgusted with the treatment they have experienced. No wonder that there are so few good workmen in the country.

A VOICE FROM THE COUNTRY.

MASONS' PROVIDENT INSTITUTION.—We would direct attention to an advertisement in another column, showing that the Masons' Provident Institution, established in 1845 for granting pensions and erecting an asylum for aged and decayed masons and their widows and orphans, are to hold their second annual dinner in aid of their funds on Monday next, the 6th inst. when Mr. Tite, F.R.S. will be in the chair, supported by a goodly number of honorary stewards. It is to be hoped that influential members of the trade will also rally round him, and assist in producing a result that will be of some consequence to the widow, the orphan, and the aged mason, for whose benefit the institution has been founded.



ST. JOHN'S SCHOOLS, ANGELL TOWN, NORTH BRIXTON.

SCHOOLS AT ANGELL-TOWN, NORTH BRIXTON.

THE schools at Angell Town, North Brixton, are built of Rochester brick, with Bath stone dressings, and consist of a school-room for 120 girls, 72 feet by 18 feet; school-room for 180 boys, 100 feet by 18 feet; with a class-room, 28 feet by 18 feet, having a residence attached; an infants' school, to hold 100, 37 feet by 23 feet, with a mistress's house adjoining. The cost of the school-houses was 1,100*l.*; residences and other outbuildings, fences, &c. 550*l.* The works were executed by Messrs. Holland, under the direction of Mr. B. Ferrey, architect.

In a recent number, we published a view of the church built here, on a site given by the owner of the estate, Mr. B. J. A. Angell. The surrounding land is fast taking shape for the erection of buildings.

WEAVERS' LODGINGS, SPITALFIELDS.

WILL you allow me to put a different construction upon the fact—that the model lodging-house (or *Metropolitan Chambers*, as the name is) in the neighbourhood of Spitalfields, has not been hitherto so well filled as might be expected from the excellence of the place,—than the one given in the last number of the *Builder*? It is there stated, as based on information gleaned from those who reside in this district, that one of the chief objections to this establishment is that of not being able to enjoy in such a lodging the agreeable tea-table conversation of some female, who might be as a mother or sister to the unhomed worker. Now, this is altogether an extremely pretty and natural sentiment, and has the special interest of coming from the lips of a class of people who so long have had the pleasing repute of loving flowers and singing birds,—although these flowers have no better place to bud and blossom in, than in an ugly, small, earthenware pot; and although the birds, linnets, and larks—even the ambitious-breasted skylark—be imprisoned in cages!

Still, is the statement itself really the fact? Is it the truth, that the Spitalfields weaver's love for the wholesome and sweetening influence of the womanly presence is so strong, that he knows of no other cause to keep him from taking up his abode in these chambers? No, I do not believe that these are the right reasons, generally speaking; and I am of this opinion simply because I know, that a large family commonly pay no more rent for the one room which is to be both the home and workshop for all, than is demanded in this lodging-house for the individual man. Besides, the unmarried weaver must necessarily have his cooking done, take his food, and find his bed where his loom is, and with those who are loom-employed like himself. He is so compelled for many reasons; in one way, because of the breadth of window he requires; in another, in consequence of the noise which his shuttle and foot-treading make; and in another, through being wholly unable to pay as much as half-a-crown per week for his lodging, with something in addition for loom-room rent in another place.

In short, the location of a half-a-crown-a-week lodging-house in this neighbourhood, combined with the extensive character of these "chambers," has been a sad misapplication of judgment, as respects at least the present time; though, doubtlessly, when the new and wide thoroughfare passing across Whitechapel and along the front of Spitalfields church comes to be properly flanked with houses of the better order, then many of the clerks, porters, and other classes of the better paid than weaver workmen, may be expected to avail themselves of the advantages of these "chambers," while for the weaver himself, the chopper of fire-wood, lucifer-match maker, and the followers of other low-paid occupations, a less expensive and ostentatious mode of model lodging-house must be contrived, and as, indeed, is very much wanted,—a lodging which ought to be no higher than 1s. 6d. per week, and which, no doubt, at this rate, might be so built and conducted, as to prove equally remunerative to the now greater charges of 2s. 4d. and 2s. 6d. per week.

J. D. D.

THE CONDITION OF THE SPITALFIELDS WEAVERS.

IN the name of the Spitalfields weavers, I humbly beg to offer you our sincere and heartfelt thanks for the exposition of our miserable condition, contained in the leading article of your last week's journal. The few cases you noticed are undeniable and accurate, and though our trade abounds with similar instances, they were quite sufficient to show that the sufferings of the silk-weavers were no chimera. There are very few of the silk-weavers whose earnings from Christmas to Christmas, average 10s. per week; very few indeed: they have so many drawbacks, and loss of time waiting for their work, besides the low price they receive for their labour, that it is really astonishing how many of them live.

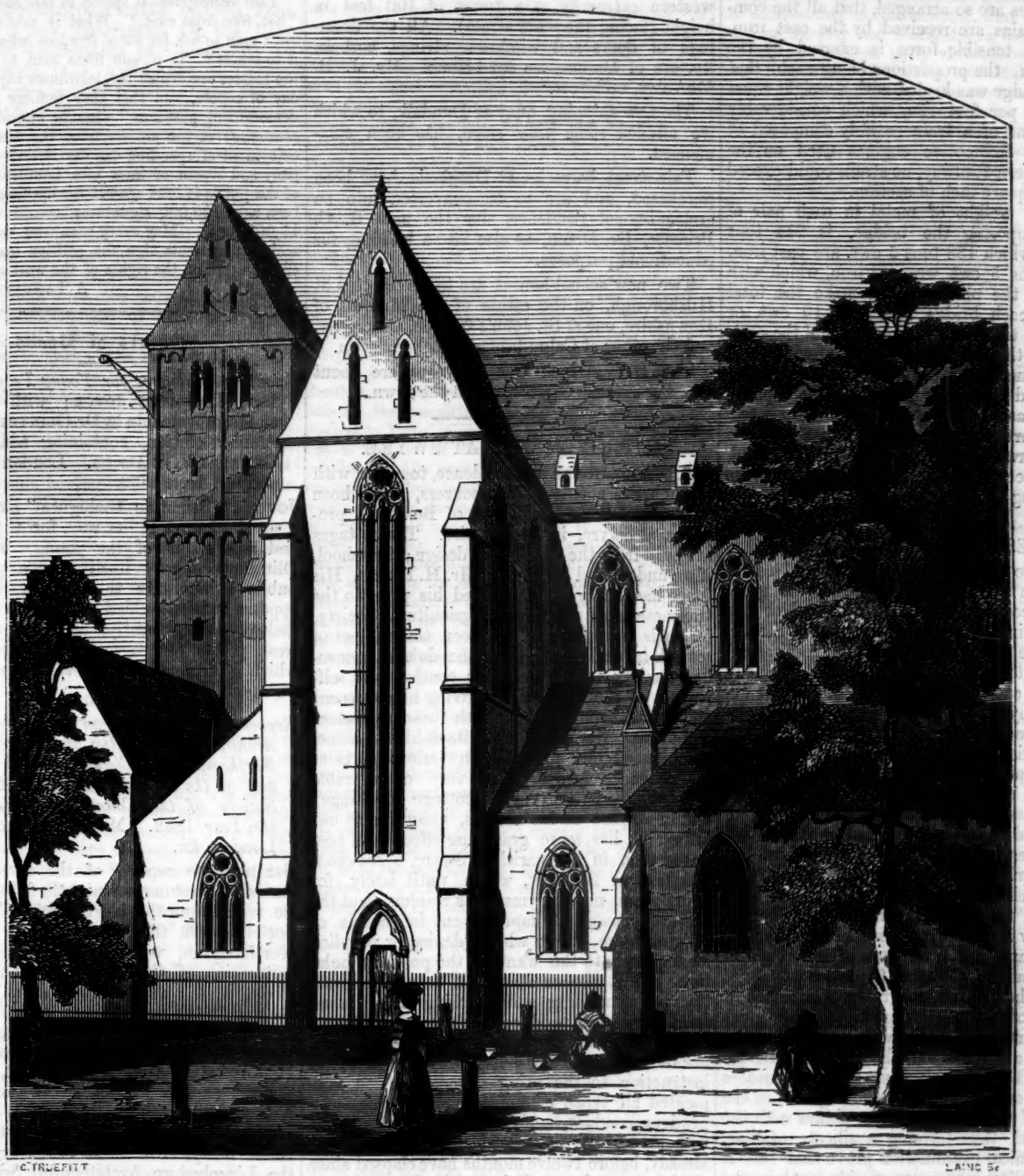
Sir, I can assure you, that the *Builder* is not quite a stranger even among the silk-weavers, and the zeal with which you advocate the interests of the working classes, and the improvement of their dwellings, is duly appreciated, and your services gratefully acknowledged by them. You, sir, kindly but truly stated that the weavers were mostly remarkable for intelligence: it is the more remarkable when considered how scanty are their means to obtain it. They really have no time to improve their morality or intelligence. Even the Sunday brings no Sabbath to many of them: they know no change but from the loom to the bed, and from the bed to the loom. The weavers are considered by many who are without the least knowledge of their real condition, as an ignorant, discontented set of people, always making a noise, and never satisfied.

These persons, sir, would do well to follow your example, by making a personal investigation; they would then be able to judge whether we have not sufficient cause for complaint. I think, sir, it would be difficult, if not impossible, in this country, to find a body of mechanics forced to toil so incessantly, and subsist in such penury as the silk weavers, and whatever will be the end of this state of things (which cannot last much longer), I am at a loss to imagine. Hundreds of the silk-weavers would be but too glad to transfer their labours to other channels of industry, did the opportunity but offer itself. I have long been trying to find other means of employment myself. I am now only thirty-one years of age, and feel strong and active enough for any work; yet being friendless, I have, like many others, failed in my endeavours. So I suppose we must struggle on in our hopeless condition a little longer, trusting to the hand of Providence to come to our rescue.

Sir, it is seldom the true state of the Spitalfields weavers is brought to public notice. The *Builder* of last week was eagerly sought for by them. I lent mine to several who could not purchase one for want of means, and they were all unanimous in giving you their thanks and heartfelt gratitude, for this and your former observation on the Spitalfields weaver.—I am, your very humble but grateful servant,

F. M.

DISCOVERY OF A STONE AND LEAD COFFIN IN THE MINORIES.—In excavating foundations a little to the south of Holy Trinity Church, a stone chest with a cover fastened by iron clamps, and containing a leaden coffin, with human skeleton, was found by the workmen and broken open. An invitation to inspect the relic reached us on the morning of the day after that appointed, which may explain a remark in some of the newspapers as to no deputation from the Society of Antiquaries having been there. The coffin is attributed to the Roman era, though from the accounts of it given we should have thought it of more recent date.



CHURCH AT STRASBURG.

STRASBURG.

Strasburg Cathedral is celebrated all over Europe, and there are other interesting specimens of Gothic architecture in the city. The reconstruction of the cathedral, after a fire, was commenced in 1177, but the works were so much delayed by dissensions, that the first stone of the western façade was not laid till 1277. The foundations for the tower were placed in 1776, under the superintendence of "Magister Erwinus de Steinbach." Steinbach's son succeeded him as architect, but the one spire, with its winding staircases, was not finished till 1439, when Jean Hültz, a native of Cologne, was the architect.

The accompanying engraving represents one of the churches in Strasburg, remarkable for the length of the three-light window in the transept. The church is simple in design, but is made effective and majestic by its height. In England we erect churches in the Pointed style less in height than ordinary dwelling-houses, and then attribute the defect to the style.

The early tower, with its beacon still remaining, adds to the picturesque effect of the pile.

THE NEWARK DYKE BRIDGE, ON THE GREAT NORTHERN RAILWAY.

At the institution of Civil Engineers, May 24th, "A Description of the Newark Dyke Bridge, on the Great Northern Railway," by Mr. J. Cubitt, was read.

This bridge, for carrying the railway across a navigable branch of the River Trent, near Newark, was described as being erected at a point where the line and the navigation intersect each other, at so acute an angle, that although the clear space, measured at right angles, between the abutments, was only 97 feet 6 inches, the actual span of the girders was 240 feet 6 inches.

The structure consists of two separate platforms, one for each line of rails, carried upon two pairs of Warren's trussed girders, each composed of a top tube strut, of cast-iron, opposing horizontal resistance to compression, and a bottom tie, of wrought-iron links, exerting tensile force; these is connected vertically, by alternate diagonal struts and ties, of cast and wrought iron respectively, dividing the length into a series of fourteen equilateral triangles, whose sides are 18 feet 6 inches long.

The top tubes rest upon the apices of equilateral, or A frames, fixed on the abutments, and each pair of girders are connected by a horizontal bracing, at the top and bottom, leaving a clear width of 13 feet for the passage of the trains.

Each tube is composed of twenty-nine cast-iron pipes, of 1½ inch metal and 13½ inches diameter at the abutment ends, increasing to 18 inches diameter with 2⅝ inches metal at the centre of the span,—the ends of the pipes being accurately turned and fitted, so as to give exact contact of the surfaces, where they were connected together by bolts and nuts. The lower tie consists of wrought-iron links 8 feet 6 inches long, of the uniform width of 9 inches, but varying in number and thickness, according to the tensile strain to which each portion is subjected.

The diagonal tie-links vary from 9 inches by 1⅛ inch to 9 inches by ⅝ inch, and, in order to accord with the relative strains, are distributed in groups of four, for the first three lengths from the ends, and then in couples for the next four lengths, on each side of the centre.

The links of the lower tie are supported, in the middle of each length, by a pair of wrought-iron rods, 1½ inch diameter, suspended from each side of a joint pin traversing the top tube; and by means of nuts and washers they could be

made to bear a portion of the weight of the platform of the bridge.

The trusses are so arranged, that all the compressive strains are received by the cast iron, and all the tensible force is exerted by the wrought iron the proportions being such, that when the bridge was loaded with a weight equal to one ton per foot run, which considerably exceeded that of a train entirely composed of the heaviest locomotive engines used on the Great Northern Railway, no strain could exceed 5 tons per square inch of section.

The total weight of metal in each pair of girders, composing the bridge, is 244 tons 10 cwt. of which 138 tons 5 cwt. are cast iron, and 106 tons 5 cwt. wrought iron, which with 50 tons for the platform, &c. make the total weight of each bridge 294 tons 10 cwt. or 589 tons for the whole structure; and the cost, exclusive of the masonry of the abutments, and of the permanent rails, but including the stageing for fixing and putting together and the expense of testing was 11,003*l.*

The proportions of the several parts of the structure were originally given by Mr. C. H. Wild, and have been only slightly modified by the author during the execution of the work.

A SUGGESTION IN GAS LIGHTING.

EVERY one who has had experience of rooms lighted with gas must be aware of the great heat produced by its combustion, and of the effect it has in diminishing the purity of the air, and therefore rendering it less fit for respiration. Now, I beg to propose, that in order to remedy these evils, each main gas-pipe should be accompanied by another, conveying air from the external atmosphere, ramifying with all the pipes, and discharging its contents by openings alongside of all those from which the inflammable gas issues. The proportion of oxygen in atmospheric air, and the relative proportions of hydrogen and oxygen uniting in the combustion of these gases, require that the atmospheric air tubes and orifices should be as 5, and the coal gas tubes and orifices as 2. If gas-pipes were fitted up in this manner, so that every burner should draw its supply of oxygen from the external air, and not from that of the room in which it is burned, the air of the latter would not be so much heated, nor so greatly diminished in purity. I offer these suggestions with great diffidence, and shall wait with anxiety for the opinions of architects on the subject. Before concluding, I beg to ask your chemical readers if there be any ground for believing that in the formation of mortar the lime combines with the silicious sand, thus forming a silicate of lime. Should chemical examination prove that this is the case, will it not more clearly explain the stony hardness acquired by good mortar, and ought it not to lead to the use of the finest silicious sand, when we are desirous to make mortar of the very best quality?

A RETIRED PHYSICIAN.

BUILDING NOTES IN IRELAND.

THE temporary platform over the Boyne has been satisfactorily tested. The works are progressing towards completion, and the government inspector has declared that the traffic of the line may be proceeded with. This being one of the most important lines in Ireland, and forming the link between the Metropolis and its principal commercial town, Belfast, the facility of communication attained by the advanced stage of this work cannot but be regarded as a great desideratum by the well-wishers of the country. The readers of the *Builder* are aware that in previous notices we have described, and carefully watched the progress of this immense structure, and we hail its present position (as suitable for traffic) as an event which will contribute in no ordinary manner to the better connection of the Irish and Scotch Metropolis.

A monument has been erected by the members of the Masonic Lodge, Downpatrick, to the late Mr. Ward, of Vianstown.

We are informed that the new R. C. Church at Landragee, has been opened for Divine Service, and its erection is mainly due to the exertions of the Rev. Edward Campbell. The position of the building is favourable, being situated on an eminence, in the centre of the town. The design is Early English, of plain character. At the western extremity is a tower of 100 feet in height (facing the main street). All the dressings of doors and windows—strings, corbels, &c. are of Dungannon sand-stone. Mr. J. R. McAuley, architect.

The new shipping quay at Dundalk, to which we alluded some time since, has been commenced.

Fair-street barracks, at Drogheda, have been purchased, and are to be converted into an archiepiscopal residence, for the new R. C. Primate, Dr. Dixon, as also into a building for educational purposes.

Two new school-houses are to be erected at Hilsborough, on the estate of the Marquis of Downshire, one at St. John's Church, Corcreeny, and the other at Cabra-bridge, Magheradartin.

The Ballynahinch Gas Company are about erecting extensive gas-works in the town.

IMPROVEMENTS AT SWYRE.

A SCHOOL-HOUSE and residence, together with a number of cottages for labourers, have been lately erected on the Duke of Bedford's property, at Swyre, in Dorsetshire. The cottages are built from the duke's own design; the school, if we understand rightly, by Mr. H. Barnes. His grace has lately communicated his plans to the transactions of the Royal Agricultural Society, for their journals. It has been the subject of remark in parliament, that the duke's benevolent anxiety to augment the comfort and self-respect of the labourer, by giving him a decent and convenient dwelling, with those appliances and advantages which may attach him to home, has induced him to build, on various parts of his extended property, a very considerable number of well-arranged cottage dwellings; and in no part of his estates, according to our informant, has more gratifying effect been produced than in the parish of Swyre, a sea-coast village near Bridport, where, until lately, for many years, no clergyman was resident, and the ordinary means of improvement in morals or religion were either wholly denied or supplied inadequately to the wants of the poorer population, whilst the exciting and hazardous practices of smuggling and poaching aided in no small degree to produce recklessness of character and idle habits. Thanks to the liberal manner in which the duke has provided means of instruction to the rising generation, and augmented all those comforts tending to promote prudent conduct, self-respect, and attachment to home for the lower orders, this parish has already, before twelve months have elapsed since the labours of an efficient schoolmaster commenced, begun to present a marked contrast to the former habits of the parents, and the wild and mischievous manners of the children now under the wholesome restraints of regular occupation, cleanliness, and decent appearance, and eager to profit by the instruction afforded.

ON THE OPENING OF THE CRYSTAL PALACE ON SUNDAY AFTERNOONS.

SEEING in your pages an article under this heading, signed, "An Old Boy," and taking it for granted that the *Builder* is what he represents it to be, viz. "an impartial host," I take the liberty of offering a few remarks on the above subject. In the first place, as one of the English mechanics referred to, I at once fling back with contempt the *degrading* assertion "that the English mechanics have no means of giving a wholesome change and impulse to their thoughts, but fly to beer, and are literally compelled to put an enemy into their mouths to steal away their brains." It is as degrading as untrue. Your correspondent refers to what he is pleased to style "a strange act,"—that of petitioning Parliament to keep closed on Sundays what he is pleased to call the region of *wholesome instruction* and *rational amusement*, against the hard-worked population of this immense city. Perhaps he will be kind enough to inform us whether the thousands of cab and omnibus men (of whom upwards of 2,000 have signed petitions against the opening of the said Palace on Sundays), with the other thousands employed on railways and steamboats on Sundays, are included amongst the hard-worked population referred to? If so, upon what principle of common honesty to those men, their wives and their little ones, does he ask that they be compelled to toil on the Sunday, in order that he and others of the pleasure-loving thousands may be gratified?

Your correspondent speaks of this country as being "not free from cant." What is cant? Is it cant for a man to ask for social freedom who would refuse it to others? Is it cant for a man to assert "that the masses are denied the legitimate enjoyments of a day of repose, and that they indulge in gross and demoralizing pastimes," while he himself would debar *thousands* of the *masses* from the *truly* legitimate enjoyment of spending one day in seven in the company and bosom of their own families? The voice of the public is loud against the opening, there having been near 120,000 signatures against it, and about 17,000 for it. May every man who would advocate social enjoyments sign the petition against any encroachments on the rights of the working classes.

A LAMBETH POTTER.

Notices of Books.

Scientific Dialogues for Young People. By the Rev. JEREMIAH JOYCE; with Corrections and Improvements by Dr. OLINTHUS GREGORY. A new edition, containing additions. By CHARLES V. WALKER. London: Longman and Co. &c. 1853.

JOYCE'S "Scientific Dialogues" has long been a standard work in its way, for the instruction and amusement of the young. The name of Olinthus Gregory itself was a password to public favour. In this edition Mr. Walker appears to have welded new matter with the old dialogues very neatly, and has added many fresh points of progress to the compendium, which is illustrated with several new engravings on wood.

Reports and Papers read at the Meetings of the Architectural Societies of the Archdeaconry of Northampton, the Counties of York and Lincoln, and of the Architectural and Archæological Society of the County of Bedford, during the Year 1852. Masters, Aldersgate-street, London, &c.

BESIDES the reports of the several societies named, this volume contains the following papers, &c. read before the Northampton Architectural Society:—On the Church of St. Sepulchre's Northampton, with especial reference to the restoration of the Round, by George Ayliffe Poole, M.A.; a Synchronological Table of the Bishops of the English Sees, from 1050 to 1550, by the same author. The following read before the Yorkshire Architectural Society:—On the History of Church Arrangement, by W. H. Dykes; on the Recent Excavations of Sawley Abbey, in Yorkshire, by J. R. Walbran; and a Historic Sketch of Pontefract Castle, by R. E. Batty, M.A. The following read before the Lincolnshire Architectural Society:—On Churchyard Monuments, by M. B. Bloxam; on Heckington Church, by G. G. Place; on Open Seats, by F. P. Lowe; on Sleaford, Sempringham, and other churches, by C. Kirk, B.A.; and on the Abbey of St. Marie, at Thornton, on the Humber, by F. P. Lowe. And the following read before the Bedfordshire Architectural Society:—On Tradesmen's Tokens, by Captain W. H. Smyth, R.N. F.R.S. &c.; on the Moral and Intellectual Expression of Architecture, by J. Taddy, M.A.; and on Samaritan Coins or Hebrew Coins, by H. J. Rose, B.D. Notices of some of the papers have appeared in our pages. The volume is illustrated by many rough sketches, plans, &c.

The Encyclopædia Britannica, or Dictionary of Arts, Sciences, and Miscellaneous Literature. Eighth edition, greatly improved and brought up to the present time. Edited by THOMAS STEWART TRAILL, M.D. F.R.S.E. Professor of Medical Jurisprudence in the University of Edinburgh. Adam and Charles Black, London and Edinburgh. 1853. Vol. I.

WE have already, in noticing the new issue of the first of its celebrated dissertations, recommended this valuable work to the favourable notice of our readers, though it needs no special commendation from us. In the first volume we have dissertations first and second,—on the Progress of Metaphysical and Ethical Philosophy, by Dugald Stewart, and the Right Hon. Sir James Mackintosh, L.L.D. &c.; with an Introduction by W. Whewell, D.D. Professor

of Moral Philosophy in the University of Cambridge: also dissertations fourth and fifth,—On the Progress of Mathematical and Physical Sciences, by Professors Playfair and Sir John Leslie: and a new dissertation On the Rise, Progress, and Corruptions of Christianity, by Richard Whately, D.D. Archbishop of Dublin. From these introductory treatises, and from a specimen of the body of the work, containing both letter-press and engravings, which is also before us, it would appear that the new work, besides its additions and corrections, will rival its predecessor, the seventh edition, in other respects as well. The "Encyclopædia Britannica" is a work for all, and for none more especially than for those who are interested in art and science in any or all of its branches.

We understand that the articles on Architecture and Building are to be rewritten by Mr. Hosking, with the view of bringing their information up to that of the present day.

Murray's Railway Reading.

AMONGST recent issues of these pleasant volumes, in their fiery-red wrappers, are, the Life of Lord Bacon, by Lord Campbell, which will serve out a pretty long run, having twice as much matter in it as usual; Wellington, his Character, his Actions, and his Writings, by Jules Maurel,—interesting as a Frenchman's idea of the old soldier, and containing a short preface by the Earl of Ellesmere; and a Month in Norway, by John G. Holloway—which will draw a little more attention to this less hackneyed route for tourists than heretofore.

Miscellanea.

CURIOUS MECHANICAL INVENTION.—A mechanic of Liverpool, Mr. John Craig (by trade, we believe, a cabinetmaker), according to a Liverpool paper, has invented a machine for raising weights, which he deems analogous, in construction, to the appliances adopted by the builders of the Egyptian pyramids. Mr. Craig did not feel bound to explain the principle and mode of action of his invention. By means of a model a small weight was made to raise and sustain another of five times the size. The apparatus is capable of being applied to the steam-engine, and with such success that twenty horse-power of steam and fuel would be equal to one hundred horse under present circumstances? "With this machine," said Mr. Craig, "a small chain, capable of bearing six cwt. and a small winch to give the first motion, I could raise five tons." We are informed, adds our authority, that there is not a wheel or block about the apparatus, and that the power is not gained by any modification of the lever.

STRANGERS' HOMES.—A shilling pamphlet, by J. D. Devlin, a working man, has just been published by Messrs. Saunders and Stanford, of Charing Cross, with a title which describes its objects, and which we therefore give in full,—namely,—"Strangers' Homes; or the Model Lodging-houses of London described, and recommended as an example of what ought to be done, at home and abroad, for the stranger work-seeker in general, but especially as regards the humbler class of emigrants. By one who has been both an Emigrant and a Model Lodger." We have read the essay with much interest. As a graphic picture of model-lodging-house life, by a model lodger, and of humble emigrant and immigrant requirements, by one who has personally experienced them, this little treatise is valuable as well as interesting; and without accordance with every opinion expressed or suggestion made, we think it worthy of perusal by all who are interested either in the emigration of the poorer classes, or in providing comfortable homes for them or indeed for wayfaring strangers of the working classes in general, whether intending emigrants or not. We would also recommend it as interesting to the working classes generally; and to all who take an active part in the erection of model or other dwellings for them, as embodying the expanding ideas and the grateful feelings of those whom the latter thus so greatly benefit, and among these we should think there are few who more warmly appreciate their motives and exertions than J. D. Devlin, working shoemaker.

RAPID FILTER.—A patent has just been sealed for the invention, by Mr. Bardwell, of a rapid filter for large bodies of water and sewage, through which filter, liquids, it is stated, will pass nearly as quickly as they run in. The patentee proposes to place such filters at or near the mouths of the great sewers, connecting the smaller sewers therewith, and thus he expects to see the Thames completely free from pollution, and as pure and silvery as in the days of Sir Philip Sydney.

TELEGRAPHIC PROGRESS.—The Magnetic Telegraph Company effected their communication between this country and Ireland on Monday week, when their new cable between Donaghadee and Portpatrick was successfully laid down.——The prospectus has been issued of an association, under the title of the Mediterranean Electric Telegraph Company, formed with the object of uniting Europe with Africa, the East Indies, and Australia, by way of France, Piedmont, Corsica, Sardinia, Algeria, and Egypt. The route is said to have been carefully surveyed. The company are making arrangements for the construction of a subterranean line along the coast of Africa, from Algeria to Alexandria; and with the aid of the British Government and the East India Company, the wires may be prolonged across the Desert, the Red Sea, Arabia, and Persia, to meet the great Indian line of 3,000 miles, now in course of construction by the East India Company, and which may eventually be extended to the Australian colonies. The capital is 300,000*l.* in 30,000 shares, of 10*l.* each, deposit 4*l.* per share. The Government of France is said to have guaranteed interest on 180,000*l.* and that of Sardinia on 120,000*l.* A contract has been entered into for the complete execution of the works from Spezzia to Tunis, including all preliminary expenses, and a transfer of the concessions, with exclusive privilege for fifty years, for the sum of 300,000*l.* the amount on which interest has been guaranteed. The works are said to be already in active progress in Sardinia.——In a lecture delivered at Belfast a few weeks ago, Mr. J. B. Lindsay said that he had recently instituted a series of experiments with the view of testing an idea that he had formed some fifteen years ago,—that no submarine wires are necessary for the transmission of electricity. In explanation of this principle, he said, "Suppose a wire connected with the copper end of the battery to be let down to the shore, and connected with a sheet of metal laid in the river. Suppose a wire from the zinc end taken to Broughty Ferry, and soldered to a metallic plate placed also in the river. Suppose similar plates laid in the river on the Fife side, at Newport and South Ferry, and these joined by a wire having in its course one or more telegraphs. Suppose now that a charge of electricity is sent through the wire on the Dundee side, this current may make its circuit from the copper to the zinc either by leaping four miles through the water from Broughty Ferry to Dundee, or by a leap of two miles across the river to the other wire at South Ferry, and another leap of two miles from Newport to Dundee. In such a case, I have found that part of the electricity does not go across, and *part of it does*; but the part of it that does go across is sufficient to work one or ten thousand telegraphs." The possibility of this we long since noted.

REVOLVING SHUTTERS.—The shutter referred to by your correspondent, "J. F." at Limerick, 45 feet long, is not so long by 6 feet as one erected by us at Water-lane, Blackfriars, three years since,—passing round a corner, rolling in a space of 20 inches diameter, and opened and closed in 1¼ minute: we would have no hesitation in constructing a shutter 100 or even 200 feet long on this principle. The great difficulty is to make revolving shutters with horizontal laths of great width in one piece, as the shaft or roller can have no centre support. The shutter referred to in Fleet-street is 24 feet wide and 18 feet high, in one piece, and is opened or closed with ease in 30 seconds. We have recently obtained a patent for some important improvements,—first the combining iron and wood in their construction, whereby great stiffness and lightness is obtained,—qualities, obviously of great importance; also for curving the laths of metal shutters in such a form that the joint, or hinge, is formed in the solid, greatly increasing the strength and appearance, and permitting them to be rolled in either direction, greatly facilitating their application.—CLARK and Co.

THE CHILLIANWALLAH MONUMENT.—We have been favoured, says the *Portsmouth Times*, with a memorandum from a friend encamped near the battle-field of 1849, that enables us to present our readers with the following particulars of this most interesting monument. The Pillar, which has been built of grey sandstone, quarried from the neighbouring hills beyond the Jelum, rises about 70 feet above the mound, and 120 above the plain. The stonemasonry has been beautifully executed by Sikh stone-cutters, and the whole appearance of the edifice, from far and near, is elegant and appropriate. An inscription is now being cut on one face of the obelisk by two soldiers of her Majesty's 24th Foot. A translation of this in Persian and Goormookee might, with much propriety, be added to the other sides, but there are not, we fear, sufficient funds left to meet the additional expense. If funds were forthcoming, the names of all officers who fell in the action might be engraved on the shaft of the obelisk; and it is only the want of money that prevents this being done.

ARCHITECTURAL MEETING AT BANBURY.—Joint meetings of the architectural societies of Oxfordshire, Bedfordshire, Buckinghamshire, Warwickshire, and the archdeaconry of Northampton, were held at Banbury on Tuesday and Wednesday in last week. On Tuesday an excursion party visited Bloxham, Adderbury, Kingsutton, Warkworth, and Middleton. The first meeting was held at the mechanics' institute, when the vicar of Banbury was called to the chair, and the Rev. Lord Alwyne Compton read a paper on Compton Winyates; the Rev. H. Williams, vicar of Kempston, Beds, one on Druidical Remains; and the Rev. John Taddy, rector of Northill, Beds, one on the Roman and Saxon Remains lately disinterred at Sandy, Beds, and some remarks on the Roman Settlements in Britain. An evening meeting was also held at the Mechanics' Institute, and was more numerously attended than the morning meeting. Lord Alwyne Compton presided. The sitting was occupied by the reading of a paper by Sir Henry Dryden, bart. "On Church Arrangement, with reference to Church Music." On Wednesday, the excursion was to Broughton, where both the church and the castle (the latter open to visitors by permission of Lord Say and Sele) were objects of interest; thence to Swalcliffe, and on to Compton Winyates. Here a large party assembled, and after thoroughly examining the building, were hospitably entertained with luncheon. The excursionists returned by Tysoe and Wroxton Abbey. At nine o'clock the concluding meeting was held at the Mechanics' Institute. Rev. G. M. Nelson was called to the chair. Mr. E. A. Freeman read a paper "On the Three-fold Division of the Ground Plan in Churches." Mr. Faulkner made a few observations on the importance of preserving monumental brasses, which, with gravestones, he remarked, were, in early times, the only records of pedigrees. As an instance, he mentioned that a solicitor of Banbury had not long ago worked out, through gravestones and parish registers, the title of a poor man to property of considerable amount. Several interesting relics, brought by visitors, were on view during Tuesday, at the White Lion. The *Banbury Guardian* gives a pretty full report of the meeting.

A NEW PERCUSSION CARTRIDGE FOR BLASTING.—Capt. Norton has invented a blasting-cartridge which, it is said, can be used in blasting rocks under water, but the main purpose of the invention of which is the shattering and destroying of forest trees in wild countries or in bogs, the removal of blocks of ice impeding navigation, &c. The *modus operandi*, as applied to trees at Cork, is as follows:—A triangle is made of three larch spars placed over the root to be blasted, a hole being bored by an auger into the root; a gouge rimer after the auger clears away the rough interior, and admits the cartridge freely. About 3 inches deeper than the centre, a plug of iron 1½ inch long, or a small round stone, is forced into the bottom of the hole, so as to prove a *solid* foundation. The cartridge, with a percussion cap on each end of its steel pillar, is then dropped in, and rests on the iron foundation. A rammer of iron, about 4 inches longer than the depth of the hole, is then inserted. A block of wood, about sixty pounds weight, suspended by a strong cord vertically over the projecting head of the rammer is then allowed to fall on it, when, by the momentum or blow, the explosion takes place. The charge in these cartridges is about an ounce of Hall's powder; and it is said to be probable that the fourth part of the powder used in the present manner of blasting will be found by this method to be sufficient.

ARCHITECTURAL ILLUSTRATIONS.—The *Athenæum* says,—"We are informed that a rather extensive collection of drawings and illustrations of mediæval architectural works is now offered for disposal at Leipsig. The collector is Dr. Puttrich, author of 'The Architectural Monuments of Saxony,' and who has been for forty years bringing them together. The collection amounts to nearly one thousand water-colour drawings, by Dorst, E. Gerhardt, J. Goldstein, Haach, M. Hauschild, Al. Hermann, E. Kirchner, Locillot, H. Steenwyk, H. Nicolaj, C. Patzsehke, G. Pozzi, Pulian, Domen, Quaglio, Rossbach, Rothbart, C. Sprosse, Thürmer, Vermeersch, G. and O. Wagner, C. Werner, Wilder, and others, as well as of nearly three thousand copper-plate engravings, lithographic prints, woodcuts, &c. taken from similar works of art; a portion having been prepared for the work, 'Architectural Monuments of Saxony.'"

VENTILATION OF THE HOUSE OF COMMONS.—Sir,—In a paragraph in your last impression you say the ventilation of the House of Commons is under Mr. Wilson, this I shall be obliged by your correcting. It is, as well as the whole of the other portions of the palace, placed under my charge by the Office of Works. The defects, whatever they be, of the House of Commons, must rest on the arrangements which I have been required to adopt, without having had given to me the opportunity, as yet, of making my own.—ALFRED MEESON.

RAILWAY MATTERS.—In singular accordance with all we have maintained for years in regard to the trim of trains in transit, and the question of communication between guards, passengers, and drivers, Mr. Wyndham Harding, the well-known civil engineer, and railway secretary, has addressed a letter to the *Times*, in which he gives it as his opinion that the attempt to communicate between the guard and driver by means of wires or tubes linked or coupled to each other, is, as he has found in practice, a mockery, a delusion, and a snare; and that there is only one safe and rational way of communicating between guards and drivers—namely, that along every train, without exception, the guards should be able to make their way to the engine, so as to make personal communication to the driver. This is to be accomplished by safe handfasts, holdfasts for the feet, and by lengthening the foot-boards. The same means of course would enable the guards to communicate personally and directly with the passengers in every carriage.——We used also to maintain, that till directors were made personally responsible, none of these and other necessary improvements were likely ever to be carried out, but we scarcely anticipated that by this time directors *would* be made responsible. Three directors of the York and North Midland have actually been arrested on a charge of manslaughter; and still more recently, a verdict of manslaughter has been given against the chairman of the South-Western,—a most severe verdict, considering that,—as not many weeks back, the *Times* approvingly remarked,—this South-Western line is the only one on which the lives of the public have been really held sacred, or anything like safety assured to them.—— The London and Brighton Company have commenced a long-desiderated improvement in second-class carriages. Some new ones have been provided with cushions covered with leather, and in some cases the backs of the seats are padded. As old carriages go in for repairs, this change will be made in the seats and backs. The company have also added superior third-class carriages to their stock: they are covered in, and divided in the centre; so that some protection will be afforded against heat, wind, and rain.——It should be noted in respect to possible causes of accidents, that extreme cold will so far contract the rails of a railway as to leave wide gaps between each rail, so that there is more jolting and jarring on railways in winter than in summer. Again, if in summer allowance were not made for expansion, the rails would bulge each other out, and also thus endanger the line.

LODGING-HOUSE LEGISLATION. — The Common Lodging-houses Bill passed through committee in the House of Lords last week, on a motion by Lord Shaftesbury, and was ordered to be reported on Monday thereafter. In reference to this subject a correspondent suggests the appointment of salaried inspectors, to be elected by the various town parishes, with summary power to enter dwellings rated at less than 20*l.* a year, and to report on nuisances or sanitary defects, and by subsequent procedure before the magistrates to cause the same to be remedied. While moving the recommittal of the Bill, Lord Shaftesbury stated that from all parts of the country he had received concurrent testimony as to the beneficial operation of the existing Act. At present there were no less than 80,000 persons living in houses registered under the Bill, and in the course of two months from the present time there would be 20,000 more. In the houses so registered would be found order, decency, and cleanliness, where before existed nothing but filth, disorder, and indecency. He could adduce the testimony of many foreigners, more especially of Americans, who had been perfectly astonished at the change which had taken place in the habits and condition of the people in consequence of the operation of this Act.

CORROSION OF IRON RAILINGS.—A correspondent, "J. H. T." recalls attention to the decay of iron railings where they are fixed with lead, and recommends that the lead be shaped so as to prevent any lodgement of water as is frequently the case where the lead and the iron are united. No doubt in some cases the corrosion might be thus hindered, but it often proceeds where no water can lodge: whether this be from the mere moisture in the air, or whether the action be thermo-electric more than galvanic, and do not even require moisture, does not very clearly appear. It would be worth while to institute some little series of experiments in order to settle the question.

METROPOLITAN WATER SUPPLY.—The Select Parliamentary Committee on the Supply of Water to the Metropolis, after discussing the subject of "A Bill for the better Supplying with Water certain parts of the Western District of the Metropolis, in the county of Middlesex, to be carried out by a company called the West London Waterworks Company," have decided that the preamble has not been proved, consequently, for the present session, the Bill is lost.

HARBOURS OF REFUGE.—A statistical return of the works now carrying on at sundry harbours of refuge in Great Britain has been published. From this return it appears that works for the greater safety and efficiency of such harbours are being carried on at Dover, Harwich, Alderney, Jersey, and Portland. For Dover the total estimate was 245,000*l.*; the total amount voted is 176,000*l.* The vote required for 1853-54 amounts to 34,000*l.* and about 35,000*l.* will afterwards be required to complete the works. The total estimate for Harwich is 110,000*l.* the whole of which has been voted. Alderney stands thus:—total estimate, 620,000*l.*; amount voted, 245,000*l.*; vote for 1853-54, 62,000*l.*; votes required for completion, 313,000*l.* Jersey—total estimates, 700,000*l.*; amount voted, 222,000*l.*; vote for 1853-54, 40,000*l.*; votes required for completion, 438,000*l.* Portland harbour and breakwater—total estimate, 588,959*l.*; amount voted, 275,000*l.*; vote for 1853-54, 90,000*l.*; and the sum required to complete the works amounts to 223,959*l.*

REPORT ON THE GREAT LONDON DRAINAGE COMPANY.—Messrs. Bazalgette and Haywood, for the Metropolitan Commission and the City Commission of Sewers respectively, have reported to their Boards, in a joint report, on the scheme of the Great London Drainage Company. The conclusions of this report are, on the whole, unfavourable to the scheme as proposed. It would greatly interfere, it is said, with the powers and proceedings of the sewers commissions, unless considerable and stringent alterations be made not only for reservation and recognition of these powers, but also for superintending authority on the part of the commissions over the proceedings of the company. In their Bill as it stands there is really no strict prohibition from turning either the sewage or the flood water into the Thames, and although the purpose of the company is to convert the sewage into solid manure, they may do this at one period throughout the year and at another allow it all, as heretofore, to flow into the river. The reporters consider that the question as to the actual and permanent practical value of the manure prepared and sold from sewage ought first to be definitely settled and ascertained before any great work is gone into on the faith of its saleable or remunerative value; and that neither the Sewage Manure Company's doings in liquid manure nor Mr. Moffatt's in solid manure have settled this question; but that experiments now being gone into at Leicester by Mr. Wicksteed, the engineer, who was himself connected with one of the proposed metropolitan sewerage companies, will shortly decide this question in one way or other. The subject altogether is viewed as a complex one, and as such it is treated, so that within our limits we cannot fully go over all the objections and the precautionary recommendations of the reporters, and must refer all further interested to the report itself.

LOSS OF LIVES BY FALL OF A WALL AT GLASGOW. —In course of alterations and additions at the Glasgow Gas Company's works at Townhead, some walls were being razed, and one of them suddenly fell on the assistant manager and three labourers, all of whom were killed. Two other labourers, though buried also under the ruins, were not even seriously hurt.

POINTING STONE WALLS.—I wish, Mr. Editor, you would raise your voice against the unscientific mode of pointing *stone* walls in Exeter and the neighbourhood. "Tuck and point," as square and prim as any new piece of citizen's brick-box, projecting nearly a quarter of an inch from the face of the work, is the mode adopted; and if the natural joints of the work are not straight, no matter,—the pointing squares it all up!! I am amazed that architects should sanction such doings.—CLERICUS.

THE BRADFORD PEEL MONUMENT. — The committee of the subscribers to this monument met on Wednesday last, and decided that the monument shall consist of a bronze statue of the deceased statesman, by Mr. Behnes. The cost is to be 1,000 guineas. The second prize has been awarded to Mr. Foley, and the third premium to Mr. Thos. Milnes.

SUFFOLK INSTITUTE OF ARCHÆOLOGY.—A general meeting is to be held on Friday, the 17th of June, to inspect Hawstead Church; Hawstead-place, the remains of the seat of the Drurys; and Hardwicke House, the seat of the Rev. Sir T. G. Cullum, bart. who will kindly open his house on the occasion, at two o'clock. Papers will be read at each of these places.

THE KILKENNY AND SOUTH-EAST OF IRELAND ARCHÆOLOGICAL SOCIETY.—The May meeting of this society was held on Wednesday, in week before last, at Kilkenny, the Rev. Dr. Browne, of Kilkenny College, in the chair, when a number of new members were admitted, and the printed transactions of the society for 1851 were laid on the table, and various papers were read, among which were a description, by the Rev. James Graves, of a sepulchral tumulus discovered in Queen's County; a paper on Folk Lore, by Mr. Hackett, of Middleton; one on the ancient cross of Banagher, in King's County, by Mr. T. L. Cooke, of Parson's-town; on the disputed monument in the Abbey of Holy Cross, by the Rev. A. B. Rowan, of Belmont, Tralee; and on ancient dials, by the Rev. James Mease. Of most of these papers reports are given in the *Kilkenny Moderator*.

PROGRESS OF BUILDING, &C. NEAR MANCHESTER. —Lord Stamford has sold, in Ashton-under-Lyne (during the last ten months), upwards of fifty statute acres of building land, on chief rents, varying from 2d. to 2½d. per square yard. The building trades generally were never known to be so brisk throughout the manufacturing districts as at present. The only check to works is the difficulty of dealing with the men. Wages to artisans have risen within the last six months, 6d. to 1s. per day. One contractor having extensive works in hand, states that he must lose some 8,000*l.* or 10,000*l.* if the present high rates of wages continue.

NEW CHURCH AT GRAVESEND.—A new church has been erected for the district of Rosherville, in the parish of Gravesend, and was to be consecrated by the Bishop of Rochester on the 2nd inst.

WILD ESTIMATES.—Please insert the following tenders for a Portland-stone monument to the memory of Mr. John Rogers,—Mr. May, architect; viz.:—

Johnson	£158 0 0
Suller	110 0 0
Yew	99 0 0
Myers	96 0 0
Mallcott	83 10 0
Bewers	68 0 0
Young (accepted)	56 0 0

A COMPETITOR.

I BEG you will insert the lists of Tenders delivered for erection of "Church for Ragged Poor of the Spitalfields' District:" Mr. Harrison, architect. Quantities not supplied:—

		If part faced with Kentish Rag-stone.
Brown	£849 0 0	£869 0 0
Perry	757 0 0	
Smith	749 0 0	770 0 0
Tolley	609 10 0	634 10 0
Clever	499 16 0	474 19 0

—J.

A SLIGHT DIFFERENCE.—Tenders for building two semi-detached cottages at Highbury-hill: Mr. Henry Matthews, architect:—

Brass and Son	£2,368 0 0
Glenn	2,128 0 0
Parry and Son	1,857 0 0
Rowland and Evans	1,472 0 0

TENDERS.

For a new Medical College at the London Hospital, and for alterations, &c. at the present hospital. Mr. Mason, architect.

Ashby and Horner	£18,100 0 0
Piper	17,965 0 0
Cubitt	17,795 0 0
Hill	16,572 0 0
Nesham	16,541 0 0
Lucas	16,310 0 0
Little	16,080 0 0
Myers	15,601 0 0

For the Bristol General Hospital. Mr. W. B. Gingell, architect. Quantities not supplied.

EXCAVATOR, MASON, AND BRICKLAYER.

Willcox and Sons	£9,388 0 0
J. N. Brown	9,180 0 0
G. N. Strawbridge (accepted)	9,080 0 0

CARPENTER AND JOINER.

H. E. Hamlen	£4,120 0 0
J. and J. Foster	3,990 0 0
S. Bowden (accepted)	3,806 0 0
A. Maggs	3,660 0 0

For house at Maiden-lane for Mr. John Atchelor. Quantities furnished.

Deverell	£1,547 0 0!
Chapman	1,535 0 0
Glenn	1,495 0 0
Thompson	1,365 0 0
Day	1,220 0 0
Cooper	1,148 0 0
Brake	900 0 0!

TO CORRESPONDENTS.

"Power of Water.—Will any of your readers inform me the motive power of a stream of water running 180 gallons per minute over a fall of 20 feet? It is not practicable to make a reservoir only sufficient to collect the water which flows in small streams out of a hollow rock of stone in a situation where to dam would lose the water unless a very considerable expense was incurred.—W." "S. W. R." "W. P. G." "A. S." "H. B." "J. L." "J. A. P." (paper mentioned did not reach us), "C. J. P." "H. B." "J. C." (shall have attention), "R. W." "J. D. L." "T. C." (under our mark), "B. B." (ditto), "W. W." "A. T." "E. B." "Zinc Paint" (a number of letters have been received and will have consideration), "M. X. M." "C. J. C." (shall have them), "H. G." "Another Architect" "W. R." "J. D. L." "A Brother," "H. D." "G. J." (shall have attention), "L. S. and W." "Competitor."

"*Books and Addresses.*"—We have not time to point out books or find addresses.

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WANTED, immediately, a practical Man, as principal FOREMAN, to take the management of the out-door works of first-class buildings in town.—For further particulars, address letters to T. H. Office of "The Builder," 1, York-street, Covent-garden.

WANTED, several experienced MARBLE MASONS.—Apply at the Manchester Marble Works, Piccadilly, Manchester.—May 26, 1855.

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WANTED, immediately, a SCULPTOR, to Carve a Female Figure in Stone. Liberal wages will be given.—Apply to Mr. J. B. ROBINSON, Belper, Derbyshire.

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WANTED, a steady, industrious WORKING FOREMAN, to superintend the carpenters' work of an extensive repairing, &c. job.—Replies, stating where last employed, references, wages, &c. addressed, "Builder, Post-office, Norton-folgate, London," will be attended to.

TO DRAUGHTSMEN, &c.

WANTED, immediately, an ASSISTANT in an Architect's Office.—Address to Mr. T. OLIVER, Architect, Sunderland, stating age, qualifications, terms, references, &c.—An ARTICLED PUPIL also wanted, who has a taste for Drawing.

WANTED, by an Architect and Surveyor, a DRAWING CLERK, who can make finished and working drawings, and who has been used to office duties generally. To state where last employed and amount of salary required.—Address, by letter only, CHARLES G. SEARLE, Esq. 29, Poultry.

TO PLASTERERS.

WANTED, a GOOD HAND; he must be thoroughly conversant with his business, and of sober, steady habits.—Apply to JEREMIAH LONG, Esq. Union-street, Hackney-road.

TO JOURNEYMAN CARPENTERS.

WANTED, THREE or FOUR good active MEN, accustomed to plain carpentering work, of sober, steady habits, and with good testimonials as to character, &c.—Apply to S. PERKES and CO. Engineers, Walbrook, London.

TO CARPENTERS.

WANTED, in the Country, within fifty miles of London, a SITUATION as IN-DOOR APPRENTICE for a Youth, aged 15. Amoderate premium only will be given.—Address, stating full particulars, to A. A. 3, Bell-yard, Carter-lane, City. Strict inquiries will be made as to respectability.

WANTED by the Advertiser, aged 32, a SITUATION as SHOP FOREMAN, or as STAIRCASE-HAND, in which he has had considerable experience; understands making working drawings, &c. and has a thorough knowledge of practical geometry.—For particulars, address W. E. P. at the Office of "The Builder," 1, York-street, Covent-garden.—N.B. The country preferred.

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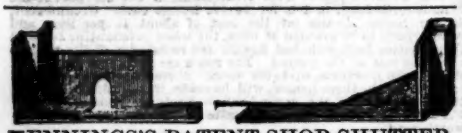

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SURVEYING, ARCHITECTURE, Engineering, Levelling, Draining, Draughting, Mapping, Measuring and Valuing of Land, Timber, Buildings, Drawing, Mathematics, &c. TAUGHT on the most improved system in a short course of Practical Lessons, by Messrs. HYDE, SMITH, and LEWIS, Civil Engineers, Architects, Surveyors, &c. of extensive practice, who are preparing gentlemen for Surveyors, Architects, Engineers, &c. Proficiency guaranteed. Terms very moderate. Steady and clever pupils may be introduced to engagements. For prospectuses, &c. apply at the Offices, 24, Guildford-street, Russell-square. Evening instruction given.—"An excellent establishment for surveying, architecture, engineering, &c."—*Magazine of Science.*

THE ARCHITECTS', BUILDERS', CIVIL ENGINEERS', and MACHINISTS' DRAWING and MATHEMATICAL CLASSES.—Conducted by THOMAS J. HILL, architect.—Offices, 12, Helmet-row, Old-street. Morning Classes, 11 till 4; Evening ditto, 6, 9 or 7 till 10 (Saturdays excepted). The Architectural Department comprises the preparation of Plans, Elevations, Sections, and Working Drawings of every description and style, Ecclesiastical and Domestic; Geometrical, Perspective, and Ornamental Drawing, with the principles of Light and Shade, illustrated by Models; Finished Geometrical and Perspective Elevations and Interiors; the Admeasurement and Valuation of Artificers' Work in all its branches. The Civil Engineering Department includes every description of Bridges, Aqueducts, Tunnels, &c. The Mechanical Department, which will now be undertaken by an experienced Engineer, comprises the method of setting out Bevil and Spur Gearing, the Projection of Screws and Worms, with the description and drawing of Locomotive, Marine, and Stationary Steam Engines, in all their details. Mathematics as applied to Mechanics, Surveying, and Mensuration in general, &c. will be taught two evenings in the week by a gentleman engaged for that purpose. Prospectuses to be had on application at the Offices, 12, Helmet-row.

1st June, 1853.

TO ARCHITECTS, SURVEYORS, ENGINEERS, AND BUILDERS.

PIGGOTT and CO. 523, New Oxford-street, call the attention of the above to their large assortment of every description of surveying and drawing instruments. Drawing Pens of the best quality at the following prices:—

Steel Drawing Pens, with ivory handles	4s. 0d.
do. do. brass-jointed do.	4s. 0d.
do. do. German silver do.	4s. 6d.

And every other instrument of the best workmanship equally low.

REPERTOIRE of MEDIÆVAL ART, 53, Wigmore-street, Cavendish-square.—Mr. BURTON, M.A. of the University of Cambridge, having made arrangements with parties who for many years past have worked from the designs, and under the superintendence of the late A. W. PUGIN, Esq. begs to inform the nobility, clergy, architects, &c. that he supplies every kind of Ecclesiastical and Domestic Gothic Work, viz.:—Metal work, chalices and patens, offertory, basons, candlesticks, coronas, branches, gas-fittings, crosses, lumps, monumental brasses, hinges, locks, handles, fire-dogs, lecterns, velvets, richly figured silks and stuffs, for altar hangings, &c. woven silk laces, embroidery in gold and silk, gold and silver llama, painted candles, picture frames, trypticks, banners, &c. &c. Church walls, roofs, altars, and reredoses, decorated in gold and diaper. Designs and materials for all kinds of embroidery supplied and arranged.

SUPERB NOVELTIES in PAPIER MACHE, at MECHI'S, 4, Leadenhall-street, London.—A visit to his establishment will prove that there is not in London another such stock of elegancies. They consist of tables, envelope-cases, netting-boxes, companions, cabinets, jewel-cases, work-boxes, dressing-cases, tea-caddies, hand and pole screens, e arracks, table-inkstands, Regency writing-desks, portfolios, playing-cards, and visiting card-cases, cigar and bottle cases, note and cake baskets; also an assortment of needle-cases, in pearl and tortoiseshell, silver and gold pencil-cases, penholders, and other articles suitable for presents. Inventor of the patent castellated toothbrush.

Mechi's razors and magic paste are renowned throughout the world.

GUTTA PERCHA TUBING, for the CONVEYANCE of WATER to DWELLINGS, FACTORIES, &c. &c.

Many inquiries having been made as to the DURABILITY of this Tubing, the Gutta Percha Company have pleasure in drawing attention to the following letter, received

FROM C. HACKER ESQ. SURVEYOR TO HIS GRACE THE DUKE OF BEDFORD.

"Office of Works, Woburn-park, Jan. 10, 1853.

"In answer to your inquiries respecting the Gutta Percha Tubing for Pump Suctions, I find that the water has not affected it in the least, although it will eat lead through in two years. We have adopted it largely, both on account of being cheaper than lead, much easier fixed, and a more perfect job.

"Yours, &c. "C. HACKER."

N.B. The Company's Illustrated Circulars (72 pp. 4to.), containing Instructions to Plumbers for joining tubes, lining tanks, &c. will be forwarded on the receipt of four postage-stamps.

THE GUTTA PERCHA COMPANY, PATENTEES, 18, WHARF-ROAD, CITY-ROAD, LONDON.

LATHS!!—To BUILDERS, PLASTERERS, and OTHERS.—Mr. GEORGE FOSNEY is now selling superior Laths, made from the best Baltic wood, at 3s. per load, at his Timber and Deal-yard, Ferry-road, Millwall, Poplar, five minutes' walk from the West-India Dock station. A large stock of Laths and well-seasoned Flooring Boards always on hand.

REFINED ANIMAL OIL, for all kinds of Machinery, equally applicable for Heavy or Light bearings. This Oil, manufactured by BOWER and TRIGG, being a pure fat Oil, is confidently recommended as the very best for all kinds of Engineering purposes, and, being an Animal Oil, cannot possibly injure or corrode the finest machinery. It has now been tested for some years, and several eminent Engineers, under whose supervision it has been used, have borne testimony to its superiority over every other lubricator. Sold in cans or casks of any size at 5s. 6d. per gallon. Machine Oil, suitable for Saw-mills, at 3s. 6d. per gallon, cans and casks charged, and the same allowed for when returned. Five per cent. discount for cash on delivery.—BOWER and TRIGG, Oil Refiners, White Lion-street, Bishopsgate, London.

SCAFFOLD POLES for SALE.—A large quantity of 4 to 6-inch new SCAFFOLD POLES, average length, 40 feet. Price for cash net, 11d per foot, where they lie.—Apply to Mr. NICKS, at the St. Pancras Saw Mills, Old St. Pancras-road.

SCAFFOLD and FALL-ROPES, PATENT SASH and BLIND-LINE, BED-SACKINGS, SUN-BLINDS, COCOA-FIBRE MATS AND MATTINGS, &c. are supplied on the best terms, by B. AUSTIN, Manufacturer, 431, OXFORD STREET LONDON.

ROMAN and OTHER CEMENTS. Manufactured by J. M. BLABHFIELD, successor to the Patentees, PARKER and WYATT, who, in 1796, first introduced PARKER'S ROMAN CEMENT; also Tarras and Portland Cements, English and French Plaster, Terra Cotta Chimney Pots, Trasses, &c.
Manufactory, Mill Wall, Poplar; Depôts, Commercial-road, Lambeth; and Paddington-basin.

MEDINA (ROMAN) CEMENT.—The material of which this cement is made is obtained in the Isle of Wight. It has all the properties of the Sheppy Stone, but is much better adapted to engineering works, from the rapidity with which it sets and hardens under water. It has been long used at the great Breakwater at Cherbourg; in a similar work at Alderney; and at Dover New Pier, to unite the masonry. The foundation of the centre pier of the Tubular Bridge at Menai Straits is laid in Medina Cement. A new groyne at Sandown Bay, Isle of Wight, has been constructed of no other material but this cement and sea shingle. The work extends 200 feet into the sea, and is exposed to the most violent gales of the Channel, in a position where every former construction had been repeatedly washed away. The convenience of the varied qualities of Roman Cement are superseded by the use of this improved manufacture.
CHAS. FRANCIS and SONS, Nine Elms, London; or West Medina Mill, Newport, Isle of Wight.
Agent for Southampton, R. L. PLUDER, American Wharf.

PARIAN CEMENT for internal use, to be PAINTED IN A FEW HOURS AND PAPERED WITHIN A COUPLE OF DAYS.—CHARLES FRANCIS and SONS, Patentees, and Manufacturers of Roman and Portland Cement, &c. &c. Nine Elms, London.

KEENE'S and PARIAN CEMENTS and FRENCH PLASTER for internal uses.—These well-known hard stuccoes dry quickly, and can be painted upon within a few days. Made and sold by JOHN BAZLEY WHITE and BROTHERS, Millbank-street, Westminster.

ATKINSON'S CEMENT, so long known and esteemed in London, for plastering purposes, is a quick-setting Cement, that requires no colouring.—Sold exclusively by JOHN BAZLEY WHITE and BROTHERS, Millbank-street, Westminster; and Seel-street, Liverpool.

THOMAS FREEN and CO. LIME BURNERS, WOULDHAM-ON-THE-MEDWAY.—Grey and Chalk Lime, by the barge or yard.

THOMAS FREEN and CO. Manufacturers of ROMAN and PORTLAND CEMENT, and PLASTER of PARIS, TUSCANY WHARF, CANAL-ROAD, KINGSLAND-BRIDGE.

THOMAS FREEN and CO. invite the attention of Contractors, Builders, and others to their PORTLAND CEMENT, manufactured at their works at Wouldham-on-the-Medway, which will be found of superior quality.

PORTLAND CEMENT.—JAMES WESTON having enlarged that portion of his CEMENT WORKS on Mill-wall, Poplar, for Manufacturing the above CEMENT, begs to inform the Trade in general that they can be supplied with any quantity they may require, either at his Works, St. Andrew's Wharf, Earl-street, Blackfriars, or Middle Wharf, Scotland-yard, Westminster. Manufacturer of Roman, Lias, and Mastic Cements, English and French Plaster, &c.

PORTLAND CEMENT WORKS, NORTHFLEET, KENT.—Messrs. ROBINS and CO. solicit the attention of their friends and the public to their superior Cement, confident that the great improvement in the manufacture of the same in 1852, together with the most perfect uniformity in colour, will ensure to them a continuance of that patronage with which they have so long been favoured.—Orders received at the Works, and at Great Scotland-yard, Whitehall.

ARTIFICIAL HYDRAULIC or PORTLAND CEMENT combines the valuable qualities of the natural cements with the additional advantage that it greatly excels them in its cementitious properties; that it is not affected by frost, and does not vegetate in damp situations. Account of COMPARATIVE EXPERIMENTS on the strength of this and other cements (read at the Institute of Civil Engineers), to be obtained from the makers, JOHN BAZLEY WHITE and BROTHERS, Millbank-street, Westminster, who prepare one quality only of Portland Cement.

PORTLAND CEMENT.—ASPDIN'S PATENT.
Messrs. ASPDIN, ORD, and CO. have much pleasure in informing consumers of this valuable cement, that they have, by means of a recent discovery (patented by Mr. Aspdin), much improved the quality of this cement without any increase in price.
Engineers and architects are recommended to specify "Aspdin's Patent," as there are numerous imitations sold as Portland Cement, resembling it only in colour.
ASPDIN, ORD, and CO. beg to call attention to their SECOND QUALITY, which is equal, if not superior, to most of the cements sold as Portland, and is considerably cheaper.
A report of experiments made to prove the extraordinary strength of their Patent Portland Cement, may be had at their office, New-wharf, Westminster, London; at their works, Gateshead-on-Tyne; or from their agent, Mr. HENRY ROBINSON, 21, King-street, Liverpool.

6, South Wharf, Paddington.

PORTLAND CEMENT.—CHARLES RICHARDSON has the greatest confidence in introducing to the trade the above superior CEMENT, being of uniform colour and quality (a desideratum never before attained in Portland Cements). It possesses extraordinary cementitious qualities, resists the action of frost and heat, and is more durable than any other Cement; does not vegetate, turn green, or crack; combined with which its eminent hydraulic properties stamp it at once as the first cement of the day for work where all the above qualities are requisite. It is manufactured on the only principle Portland Cement can be, and contrary to the statements put forth by those who have hitherto had the monopoly. Manufactured by R. GREAVES, Esq. at his Works, near the River Avon, and sent to all parts of the kingdom per boat or rail, at a reduced price to the trade.

WARWICKSHIRE BLUE LIAS LIME.—CHAS. NELSON and CO. beg most respectfully to call the attention of Engineers, Architects, Contractors, Builders, and others connected with the building trade, to the superior quality of their BLUE LIAS LIME, the natural hydraulic properties of which, and the great estimation in which this kind of Lime is held for buildings in wet and damp situations, such as wharf-walls, docks, &c. and for concrete foundations, is a sufficient recommendation for the adoption of it in all works of the above description. It is also peculiarly adapted for stucco. Orders received by—London Agents, BLYTH and JACOBS, 14, South Wharf, Paddington; and at the Works, Stockton-fields, near Southam, Warwickshire.

GREAVES'S BLUE LIAS LIME.—The superior manner in which the above is ground renders it cheaper for concrete or stucco than any other lime or cement. The shell lime for mortar is burnt on an improved principle, leaving scarcely any core. The satisfaction constantly expressed by Engineers, Architects, and Contractors, of the above, is its best recommendation.
Gibbs, Canning, and Co.'s Blue Vitrified Bricks, Pipes, Junctions, Bends, and Fire Goods.
ROMAN, PORTLAND, PARIAN, ANSTON, and LIAS Cements of the best quality.
SECONDS, PAVIORS', STOCKS, and other Bricks.
CHARLES RICHARDSON, 6, South Wharf Paddington.

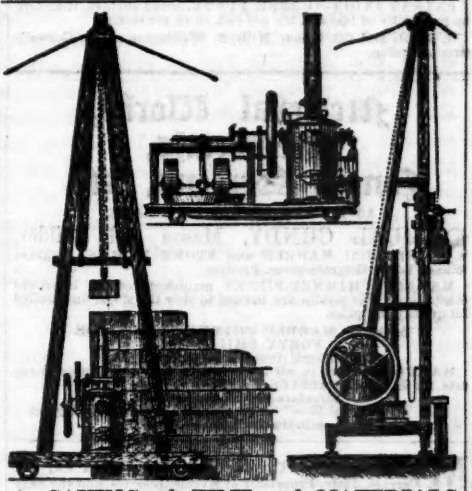
GEO. & THOS. EARLE, CEMENT MANUFACTURERS, HULL.—Light and Dark, equal to any made. Manufacturers also, and dealers in Plaster, Paris White, Mastic, Hair, Lias Lime, Laths, Slates, and Slate Slabs, Fire-bricks, Grindstones, Cement Chimney-tops, ditto Vases, Ridging, &c. Paints, Stucco, &c. Marble Merchants and Importers of Foreolano.

TO CONTRACTORS AND OTHERS.
WILLIAM PETERS (late Poynder and Medlicott), 7, North Wharf, Paddington, and Wouldham Hall, Grey Stone Lime-works, on the Medway, near Rochester, begs to inform all large consumers of Grey Stone Lime, he can supply them upon the most advantageous terms, in quantities of not less than 50 or 100 cubic yards, per barge, alongside any wharf in London or elsewhere.

PERMANENT STUCCO WASH,
WITHOUT SIZE OR OTHER CORRUPTIBLE INGREDIENT.
As used at St. George's Hospital, Hyde Park Corner.
JOHNS and CO. having effected some important improvements in the manufacture of this very useful material, confidently offer it to the notice of the Trade and the Public generally, as possessing every advantage over the common Lime Wash or Water Colour for STUCCO or BRICK WORK. It is a Stone Colour, but may be tinted to any other—DOES NOT WASH OFF—is perfectly dry in twenty-four hours, and, being a non-absorbent, is admirably adapted for Railway Stations, Union Workhouses, Barracks, Schools, Prisons, &c. One cwt. will cover 250 square yards. It will keep good for years, and MAY BE EXPORTED WITH PERFECT SAFETY.
JOHNS and CO.'S STUCCO CEMENT.—This cement, from the great reduction in price, and its suitableness for internal as well as external surfaces, places it above all other materials of its kind; it has no caustic qualities; may be painted or papered in a few days; never blisters, cracks, or vegetates; soon becomes as hard as stone; and may be cleaned with a brush and water.
The merits of the PAINT are well known for its application to stucco work of all kinds, and external work generally. Numerous testimonials, prospectuses, and every information may be obtained, on application to the Sole Agents, PHILIP HARE and CO. at the Warehouse, 22, Steel-yard, Upper Thames-street. A liberal allowance to wholesale dealers.

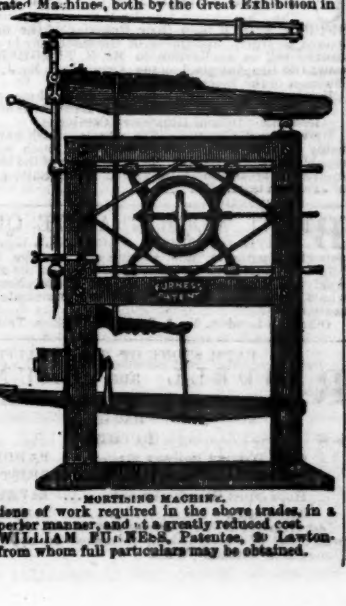
TO IRONMONGERS AND SMITHS.
TO BE DISPOSED OF, in consequence of the indisposition of the Proprietor, a FURNISHING IRONMONGER and SMITH'S BUSINESS, with workshop, forge, and moderate-sized dwelling-house. Stock and fixtures about 300l. which could be reduced.—Apply to Mr. HAINES, Auctioneer, Grosvenor-street West, Eaton-square.

WANTED to PURCHASE, a STEAM-ENGINE and BOILER, from five to eight horse power, in good repair.—Addre s by letter, stating price and all particulars, to BARTON, BROTHERS, 73, Old Broad-street, City.



A SAVING of TIME and MATERIALS with solidity of Building.
NATHAN GOUGH'S PATENT PORTABLE STEAM-ENGINES of two, three, four, and six-horse power, for grinding mortar, raising building materials, driving piles, circular saws, pumps, &c. 46, Albert-street, Manchester.
TESTIMONIAL
From the Trustees of the Birkenhead Docks.
"Engineer's Office, Dock-yard, Birkenhead, 21st July, 1851.
"Nathan Gough, esq.
"Sir,—I have much pleasure in informing you that the three-horse engine which you have placed in the Caisson for pumping, answers its purpose admirably, doing its work much better than seventy men could accomplish. From its portability and lightness, it is peculiarly adapted for such a purpose.
"I am, Sir, your obedient servant,
"JAS. ABERNETHY."

VALUABLE PATENT MACHINES FOR WORKING IN WOOD.
PRIZE MEDALS have been awarded to these celebrated Machines, both by the Great Exhibition in London, and many scientific institutions.

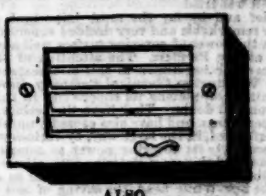


MORTISING MACHINE.

They are extensively used throughout the United Kingdom, by joiners, contractors, coach and cabinet makers, railway carriage and waggon builders, machinists, agricultural implement makers, shipbuilders; and also by the British and French Governments, for planing and squaring up, moulding, tenoning, mortising, grooving, rebating, sawing, and boring. Their operations are in every respect perfect, either in hard or soft wood, and will perform all the ordinary descriptions of work required in the above trades, in a very rapid and superior manner, and at a greatly reduced cost.
Sold only by WILLIAM FURNESS, Patentee, 2, Lawton-street, Liverpool, from whom full particulars may be obtained.

WATSON'S PATENT VENTILATOR.
MANUFACTORY:
KING-CROSS-LANE, HALIFAX, YORKSHIRE.
THE Great Problem of Perfect Ventilation is now Solved by WATSON'S PATENT SELF-ACTING DOUBLE-CURRENT VENTILATOR, which has been successfully applied to Public and Private Buildings, Stable Offices, Workshops, and to all kinds of premises requiring ventilation, and the withdrawal of heat, steam, and dust.
Thousands of persons assembled in one building have breathed as pure air, and felt as cool and comfortable, when Watson's Ventilator was applied, as when in the open air, or sitting in their own drawing-room.
The Ventilators supply the purest air of the locality, by thousands of hogsheads per hour if required, and without any apparent sensation from draught, as well as withdraw all the vitiated air. They are not liable to get out of order; a child may regulate them; and they will last for generations without subsequent expense for repairs, other than an occasional coat of paint.
The Ventilators are all Warranted, and buildings are undertaken to be ventilated upon the principle of NO CURE NO PAY.
Horses that have been troubled with cough and other symptoms of disease have been cured by Watson's Ventilators.
Testimonial from John Baird, esq. the eminent Glasgow Architect;—
"Mr. Chas. Watson,
"DEAR SIR,—I have much pleasure in bearing testimony to the successful application of your ventilators to various apartments in this city; and of all modes of ventilation I am acquainted with, yours is the most natural, simple, and effectual. While it relieves the apartment of bad and unwholesome air, it at the same time supplies the fresh air without currents being felt; and a very little attention to the valves regulates the temperature of the apartment.
I shall have no hesitation in using it in all places requiring ventilation, such as churches, halls, workshops, staircases lighted by cupolas, saloons, and all kinds of stable offices.—I am, dear Sir, yours truly, "JOHN BAIRD, Architect."
"7, Abercromby-place, Glasgow."
Testimonials forwarded on application.

REGISTERED VENETIAN VENTILATOR,



ALSO,
DR. ARNOTT'S VENTILATING CHIMNEY-VALVES, at the following reduced prices:—

No. 1. Plain Valve	3s. 6d.
No. 2 Bronzed and feathered	4s. 0d.
No. 3. Bronzed and feathered, with trellis-work	4s. 6d.
No. 4. White and gold lines, with trellis-work	5s. 0d.

PATENT SPINDLED CHINA MORTISE FURNITURE.

White	1s. 6d. per set.
Black	1s. 10d. "
White and gold	2s. 6d. "

J. H. BOOBBYER and CO., Ironmongery, Brass Foundry, Nail and Tool Warehouse, 14, Stanhope-street, Clare-market, London. Established nearly 200 years for the sale of goods from the best manufactories at the lowest prices.

VENTILATION.—PURE AIR.

Sheringham's Ventilator for the admission of pure air through an EXTERNAL WALL.
With single pulley, from 6s. each; with leading pulley, from 8s. 6d.
These Ventilators are so arranged that the requisite quantity of air may be admitted for the due ventilation of an apartment without the slightest draught being felt by the occupants; and as they are placed in the external wall, their action is not impeded when the house is closed for the evening, at which time a constant supply of fresh air is most required.—HAYWARD, BROTHERS, sole Manufacturers, 190, Blackfriars-road, and 117, Union-street, Borough; and of all respectable ironmongers, builders, &c.

ROYAL ACADEMY of ARTS, Trafalgar-square.—The EXHIBITION of the ROYAL ACADEMY is now OPEN. Admission (from Eight o'clock till Seven), One Shilling. Catalogue, One Shilling.
JOHN PRESCOTT KNIGHT, R.A. Sec.

THE NEW SOCIETY of PAINTERS in WATER-COLOURS.—Their NINETEENTH ANNUAL EXHIBITION is NOW OPEN, at the Gallery, 53, Pall-mall. Admission 1s.
JAMES FAHEY, Secretary.

ROYAL POLYTECHNIC INSTITUTION. Patron—H. R. H. PRINCE ALBERT.—New and interesting attraction.—The First Part of an Historical Lecture on "The Thames," from its Source to its Estuary, by George Buckland, esq. assisted by Miss Blanche Youngs, with appropriate Songs and Dissolving Scenery, every evening (except Saturday), at Nine o'clock; in addition to the varied Scientific Lectures and Exhibitions.—Open Mornings and Evenings. Admission, 1s. schools and children under ten years of age, half-price.

COLOSSEUM, REGENT'S PARK.—ADMISSION ONE SHILLING.—The original Panorama of LONDON BY DAY is exhibited daily from Half-past Ten till Five. The extraordinary Panorama of LONDON BY NIGHT, every evening from Seven till Ten; Music from Two till Five, and during the evening.

CYCLORAMA, ALBANY-STREET.—LISBON and EARTHQUAKE.—This celebrated and unique moving Panorama, representing the destruction of LISBON BY EARTHQUAKE in 1755, is exhibited for a short time in all its original splendour, and by the aid of new machinery, with increased startling effects. Daily at Three; Evening at Eight o'clock.—Admission One Shilling. Children and Schools half-price to either Exhibition.

INFRINGEMENT.
WOODBRIDGE'S PATENT RIVET-MAKING MACHINE.
I, JOHN BEITH HODGE, having unknowingly infringed this patent, thereby give Notice, that I have given up my Machine to the proprietors of the patent, on their agreeing not to institute legal proceedings against me. And further, I engage not to infringe the said patent in any way in future, and to use my best endeavours to protect the interest of the proprietors of the patent from any other infringers.
(Signed) JOHN BEITH HODGE.
Witnessed by—William Johnson, Patent Agent, Glasgow.
Robert Calder, Engineer, Glasgow.
Glasgow, March 26th, 1853.
THE YORKSHIRE PATENT RIVET COMPANY, Sole Licensees of the above Patent, having lately erected extensive works and powerful machinery for the manufacturing of Rivets, Bolts, Spikes, &c. are prepared to execute all orders that may be entrusted to them with the utmost care, both as regards the quality of Iron used, and punctuality in delivery.—For price, &c. apply at the Company's Works, Scott-street, Hull.

TODD'S PATENT METALLIC PROTOXIDE PAINT.

The PATENT METALLIC PROTOXIDE PAINT now offered, has been found, after the most severe trials, to be peculiarly efficacious in preserving Iron from Oxidation, Wood from Decay, and Masonry and Brickwork from dampness.

Applied to Iron it unites with it most intimately, forming a complete coating; so that thus protected, it will be found equal to the best galvanized Iron. Hence its great value to all Engineers and Iron Founders as an application to Iron Vessels, Iron Roofs, Steam and Water Pipes, &c. &c. It adheres firmly to Iron even at a red heat.

Many attempts have been made to discover a substitute for White Lead, that should possess all its virtues, without partaking of its offensive character. This Paint is not affected by sulphuretted or carburetted hydrogen gas, bilge water, or indeed foul air of any kind: hence it is well adapted for the interior of Ships, Warehouses, Offices, Stabling, &c.; and from its total freedom from deleterious properties, it will be found of great value for painting the interior of Hospitals, Asylums, Unions, Gaols, and other Buildings which may require to be painted during occupation.

This Paint resists the action of the sun's rays, and also that of the sea air; it is therefore well suited for the Colonies and all tropical climates.

For Stuccoed Buildings it will be found to be effectual in preventing the discolourations formed by vegetation, and keeping out all dampness.

The Protoxide Paint, as at present produced, is a Pale Stone Colour; but it may be tinted with any other colour to suit the taste and purpose for which it may be required.

For terms, application to be made at the Offices of the Company,

12, BISHOPSGATE-STREET WITHIN, LONDON; or to Messrs. PITCHFORD, ISLAND LEAD WORKS, LIMEHOUSE.

THE WASHINGTON CHEMICAL COMPANY, NEWCASTLE-ON-TYNE, Manufacturers of

PATTINSON'S OXICHLORIDE of LEAD.

The Washington Chemical Company having, during the last year, established a Manufactory of Pattinson's Oxichloride of Lead on a large scale, and being able to supply it with regularity, and to execute orders without delay, now proceed to bring this new and valuable preparation of Lead before their friends and the public, quite sure that it will not in the present age, be condemned because it is new, and that if judged by its merits, it must make its way, and finally take its place as one of the important manufactures of this country.

Pattinson's Oxichloride of Lead is a chemical combination of one equivalent of Chloride of Lead, and one equivalent of Oxide of Lead; it being well known that common White Lead is a chemical combination of one equivalent of Oxide of Lead, and one equivalent (or thereabouts) of Carbonic Acid, constituting what is called in chemical language, Carbonate of Lead. Now there is no reason to conclude that Carbonate of Lead is the only compound of lead valuable as a paint, and still less that it should be the best compound of lead for that purpose. In point of fact it is not so, for the newly-discovered Oxichloride in most, if not in all respects, is far superior; its colour is brilliantly white, and in a number of cases it has been tried against the best White Lead that could be obtained, and after a period of upwards of two years, it has been found to retain its white colour considerably better than the lead against which it was tried.

But the chief and by far the most important advantage it possesses is, its remarkable and very decided superiority of Body; by which term the power of covering surface well and extensively is understood among Painters. The attention of the discoverer was at a very early period drawn to this circumstance, and since that time the Washington Chemical Company have had abundant opportunities of placing its superiority in this important particular beyond all doubt. They have themselves performed a number of experiments, and have also caused a number of experiments to be performed, in the large way, by various practical men, to ascertain accurately its covering power as compared with the best White Lead, and these now state the proportions to be as 60 to 100, that is, 60 lbs. of Oxichloride Paint will cover as much surface as 100 lbs. of the best White Lead, the saving of cost being in the same proportion; besides this, the coating is thicker and more protective, both in and out of doors, as the Oxichloride dries into a hard, tenacious layer, more like an Enamel than paint.

In using the Oxichloride, no difference in the materials with which it is mixed is required. Oil and Turpentine being employed as usual both for work technically called Flatting, and for work intended to be varnished. For the use of Paper-Stainers and Leather-Dressers, the Oxichloride is found to be peculiarly suitable. The Washington Chemical Company strongly recommend this newly-discovered substance to the notice of consumers, both on accounts of its economy and its intrinsic good qualities as a paint.

AGENTS.

LONDON	Messrs. Blundell, Spence, and Co. 9, Upper Thames-street. Mr. Richd. Cooke, 7, Sise-lane.
LIVERPOOL	Messrs. Johnson and McGowan.
MANCHESTER	Mr. James Douglas.
LEEDS	Messrs. T. and E. G. Jepson.
SUNDERLAND	Mr. John Young.
DEVONSHIRE AND CORNWALL	Mr. Richd. Penrose, Tavistock and Plymouth.
EDINBURGH AND EAST COAST OF SCOTLAND	Mr. Wm. Bailey, jun. Greenside-place, Edinburgh.
GLASGOW AND WEST COAST OF SCOTLAND	Mr. John Slimshaw, Glasgow.
DUBLIN AND SOUTH OF IRELAND	Mr. P. Linskey, 91, Middle Abbey-street, Dublin.
BELFAST	Messrs. William Stevenson, jun. and Co.

THE VIEILLE MONTAGNE ZINC MINING COMPANY beg to inform the public that they have appointed Messrs. T. and S. KNIGHT, of Great Suffolk-street, Southwark, as their painters, who will be ready to execute any description of painting and decorating with the Pure Patent White Zinc Paint.

THE VIEILLE MONTAGNE ZINC MINING COMPANY'S PURE PATENT WHITE ZINC PAINT is unequalled for permanency of colour, hardness and brilliancy of surface; it is unaffected by sulphurous or any other vapours or emanations. Being completely innoxious and free from the pernicious effects of whitelead, it may be employed in all apartments whilst in use without any inconvenience to the inmates.

The greatest caution is recommended to avoid any spurious compounds that might be sold at cheap rates as Pure Oxide of Zinc. If any adulteration has taken place in the oxide, either in consequence of impurity in the material primarily made use of to produce it, an imperfect mode of production, or by mixing with the oxide certain substances calculated to give it increased weight, it then produces a very inferior instead of a very superior paint, and the economy realized by the purchasers of such oxides, becomes a very expensive result to the owner of the premises painted with them.

The VIEILLE MONTAGNE'S ZINC OXIDES, dry or ground in oil, are sold with the VM mark—In Hull, by Messrs. BLUNDELL, SPENCE, and CO.; when ground and dry, by Messrs. T. B. MORLEY and CO.; and by the Company's Grinding Agents. In London, Messrs. CHARLES DEVAUX and CO., wholesale agents, 23, King William-street, City; Mr. CHARLES JACK, wholesale and retail agent, 8, Tottenham-court, New-road, and 69, Upper Thames-street, City. In Manchester and Liverpool, by Messrs. HAWFORD and CO. of 49, Norfolk-street, Liverpool. In Leith, by Messrs. R. ANDERSON and CO, Timber-bush. Dry OXIDES and PAINTS, in kegs of 14, 21, and 28 lbs. and upwards, to be had of the Company's Agents, in Birmingham, Newcastle, Glasgow, Bristol, Plymouth, Portsmouth, Norwich, Ipswich, Poole, and the Isles of Jersey, Guernsey, Man, and Wight; also, in Dublin, Cork, and Belfast.

The Company also employ an acknowledged painter in London, who will undertake any description of painting with Zinc Paint by Contract.

For further particulars, apply to the Company's General Agent in London, Mr. SOHMOLL, 19, Manchester-buildings, Westminster.

HUBBUCK'S PATENT WHITE ZINC PAINT. The PERMANENT WHITE of the Ancients, by its costliness hitherto restricted to the use of the artist, is now offered at a less price than the ordinary White Lead. Healthful to the painter and to the occupants of newly-painted rooms, it is permanent for ages, unaffected by vapour from cesspools, or the most noxious gases.

The price per hundred weight is now less than the price of the best White Lead, whilst two hundred weight of this Paint, with seven gallons of oil and turpentine, covers as much surface as three hundred weight of White Lead and twelve gallons of oil and turpentine. It is, therefore, cheaper in the first instance, as well as desirable on every other consideration. To a contractor for extensive works taken at competition prices this is important. The saving on the paint is twenty-five per cent. whilst on the oil and turpentine it is equally great.

For painting both the interior and exterior of buildings, and for all ornamental, decorative, and sanitary purposes, HUBBUCK'S PATENT WHITE ZINC PAINT has proved to be superior to every other paint known, and equally adapted for all climates.

A circular with full particulars may be had of THOMAS HUBBUCK and SON, Colour and Varnish Manufacturers, Upper East Smithfield, London (opposite the London Docks).

PATENT WHITE OXIDE OF ZINC FOR PAINT, &c

HEALTHFUL HOMES, with avoidance of the inconvenience and expense of removal to families during painting. Disease and premature death amongst painters prevented.

LANGSTON SCOTT and WHITE, Sole Manufacturers in the United Kingdom.

Now supply this innoxious substitute for White Lead, either in Powder or Paint, of genuine purity (Wholesale, under Brand, from the Works, Grand Surrey Dock, Rotherhithe).

In 14 lb. Kegs, and upwards, from the Depôts of their respective Agents:—

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ZINC PAINT is much below the price of White Lead, possesses equal body, covers 20 per cent. more of surface, and being perfectly free from all Acids, can be tinted with the most delicate colours, which will remain permanent for years.

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THE PIMLICO SLATE-WORKS, Patronized by Royalty, the Heads of the Nobility, the Clergy, Architects of Eminence, Builders, Railway Contractors, and the Public generally.—MAGNUS'S ENAMELLED SLATE (notwithstanding the vile imitations and infringements of his patent that are attempted), continues to grow in favour with the public, being handsomer, more durable, and very much cheaper than marble.—Price-lists and a sheet of drawings, sent to any part of the kingdom gratis. Cisterns, Filters, Dairy and Larder Shelves, Wine Cellar Fittings, Slabs, and every variety of plain Slate-work, at prices that defy competition.—39 and 40, Upper Belgrave-place.

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